SUPPLEMENT.

The Mining Journal,

AILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

NEW COAL FIELDS—LEICESTERSHIRE.

cle which appeared in the Journal in March last under the ding seems to have attracted more than ordinary attention rt of several large landed proprietors in Leicestershire, are evidently desirous of solving the important problem ther coal is to be found at a workable depth over a con- tract of country extending in a northerly direction from by way of Melton Mowbray and the Vale of Belvoir. The ns in every way favour the idea that such will be found to e, and that in the districts alluded to there is a coal field ger than that now being worked, the entire extent of the ing only 15 square miles. The seams, however, are very the Main coal in the Moira district being 12 ft. thick, with s from 5 ft. to 9 ft. thick. In the Coleorton district the l is 6 ft., and the Heath End coal and Cannel 10 ft. thick. st those gentlemen who have taken a very deep interest ncidation of all the information, geological and otherwise, ing to the probability of the coal measures being found to of Leicester is Mr. W. GILFORD, of Red Hill, Surrey, and of the Manor of Dalby-in-the-Wolds, and we have no doubt s will be warmly seconded by the property owners extend- a very wide district, who will be greatly benefited by the of coal running through their estates. That everything a favourable result should a search be made for coal is evi- n the data already furnished. In the last edition of his our coal fields Mr. HULL says "It is unquestionable that ge quantities of coal lie concealed beneath Permian, Triassic, Liassic strata beyond the margins of the coal fields." He s, "There are, however, very large districts in Leicestershire, shire, and Warwickshire overspread by formations belong- he Permian and Triassic systems, where coal may be reached within 3000 ft." Mr. HULL, who was requested to report on Dalby estate, gives some very interesting particulars with o coal being found on it. He says, that "by means of the lt of Stanton-by-Dale the coal seams are thrown down to- e south, and doubtless exist under the New Red Sandstone. outh of the fault we have no further visible evidence in a terly direction regarding the range of the coal measures e newer formations. Nevertheless, as all analogy leads us that the Yorkshire, Derbyshire, and Notts coal field is a true rtially concealed under the newer formations on the east and e may safely assume that the coal measures with coal trend th-easterly direction for a certain distance, thus forming the stern edges of the basin. Now, the presence of coal under Dalby estate depends upon the exact direction of this margin e newer formations, and a very little deviation in this di- either towards the north or the south, when extended to the of Nottingham, would have the effect of bringing coal under perty, or the contrary, as the estate lies close to the line he underground margin of the coal basin may be supposed After full consideration, I incline to the opinion that the of the coal basin does pass under at least the northern part state, and that some of the lowest seams may exist below rt of it." Mr. HULL also remarks, with regard to the depths h the coal, supposing it to be present, may be found, "I s difficulty in answering this question. The following are oximate thicknesses of the strata overlying the carboniferous that district:—

r Lias, clay, and limestone	200 to 200 yards.
marl, with gypsum	180 to 200 ,,
Red Sandstone and conglomerate	40 to 50 ,,
	420 to 450 ,,

re opinion of so eminent a man as Mr. HULL must be in ay gratifying and assuring, and, in our opinion, ought to be pon. His views, too, it appears, are also shared in by other s and practical men acquainted with the district—amongst Mr. J. PLANT, F.G.S., of Leicester—who says, "Looking at the e of Sir R. CLIFTON'S pit (close to the town of Nottingham), an impression that the coal came as far as Leicester, and if lowners had only been better informed they might long since oved it." Another gentleman connected with coal mining, s recently made a special survey of the Derby estate, tracing ata from Nottingham and Clifton, reports as follows:—"I m leaving Clifton Colliery, to the south-south-east, in the n of Plumptre and Widnerpool, that the coal measures lie he New Red Sandstone—that all the upper formations take n of a wedge, and thin out as they extend further in the dip infer, from the observations and calculations I have made, Lias and the Sandstone are not so thick in the district of Old s represented by me in the first instance, and I have no rea- doubt but that the coal measures continue in and extend un- h the estate. The depth, however, can only be ascertained g; but it would be well to agree to go down 1000 ft. My for coming to the conclusion that the coal measures extend ath Old Dalby is as follows: I find that the Magnesian ne and the Lower New Red Sandstone lie in the coal mea- shown at the Hucknall Colliery, a few miles north of Not- , and that they thin out round Nottingham to the south- the Trent, when the Upper New Red Sandstone takes their es on the coal measures, and then continues forward." An- gh authority, Mr. GREENE, of the Geological Survey, in the f the Coal Commission says that "the portion of the Notts and hire coal measures which is exposed at the surface is bound outh by a line of faults, which bring Triassic beds on the gainst coal measures on the north. The down-throw of these eing to the south there is a possibility that some of the coals ave already cropped out in the country to the north of them thrown in again on the downcast side, and that their pro- measures may be found under the Triassic beds to the south line."

diately to the south of the Clifton shaft is a fault throwing the south 100 yards. The shaft reached the Top Hard coal rds, and in a bore-hole on the downcast side, what is pro- e same coal, was reached at 160 yards, whilst another bore- ile and a half still further south, shows us a bed of the same character at a slightly greater depth. Thus all the more valuable portions of the Derbyshire coal measures are proved to underlie the tract of red marl south of the Trent at Nottingham, and the low angle of the dip found over the ground yet explored leads us to hope that they will extend over a considerable area to the south and east. That the measures will sooner or later turn up in these two directions, and crop up against the overlying Lias, is probable, if as we have endeavoured to show the coal field is, as a whole, a basin, but their limits beneath the cover of newer formations can be ascertained only by actual workings. The great importance of making a very large addition to our known coal fields in the centre of the Midland Counties we believe fully warrants our giving in detail the special reasons for believing that the coal measures will be found near to Leicester, and extending probably to Melton and the Vale of Belvoir through a purely agricultural country. The value of such a mineral field as is likely to be found in Leicestershire can scarcely be calculated, for it would not only add immensely to the revenues of the landowners, but would be of material advantage to the ratepayers generally, who would be relieved of many local burdens, and causing at least their rates to be greatly lessened. Under such circumstances there ought to be no difficulty in raising a sum amply sufficient to bore by means (say) of the diamond drill to the depth of from 300 to 400 yards. This could be done by the landed proprietors subscribing being *pro rata* according to the extent of their estates. The question is not only of local but of national importance, especially in the present state of the coal trade; and we hope that no time will be lost in proving by means of the borer the minerals extending over a vast tract of land, the value of which would be enhanced fivefold in the event of coal being found beneath it. Already we are informed that only last week a valuable deposit of ironstone was found near to Old Dalby—a fact that augurs will for the success of future operations in the same district. As we were the means of bringing the matter in the first instance under the notice of those most concerned—the landowners—we shall look forward to the progress made in proving the strata with no little interest.

NOVA SCOTIA GOLD FIELDS.

SIR,—About two and a-half years ago a writer, adopting the signature "Veritas," took exception to my letters, and promised you thenceforth regular monthly official reports. The way in which that promise has been fulfilled amply proves that the *soi-disant* "Veritas" is an utter stranger to Truth, although it may serve his purpose occasionally to masquerade in her mantle. Of five reports sent at his instigation (not one of which was signed by the *Chief* of the Department), four were indirect puffs of the Isaac's Harbour or Stormont Mine, which my, to him, objectionable correspondence had cautioned British investors against, and some of your readers would now be richer had they regarded a timely-given caution.

I am glad, however, to perceive, by the numerous articles on the coal, iron, and gold interests of Nova Scotia, which have lately appeared in the Journal, that you have not forgotten us entirely, and that the advocacy of those interests is not dependent upon the caprice of a modern or even ancient *Anan(d)ias*. The first and second named interests are constantly receiving increasd attention from abroad; but the third—in the great scramble for its product through methods more indirect and often far more hazardous than mining—is still struggling for British recognition and support.

The *Mining Journal* seems to have lost sight of "Notes and Observations on the Gold Fields of Quebec and Nova Scotia,"* by Mr. SELWYN, the distinguished director of the Geological Survey of Canada, and for many years previously in the same eminent position in Victoria, Australia, the most productive gold region in the world. The opinion of so competent and disinterested an authority ought to have weight with European capitalists, and this letter is written not merely to promise a continuance of my reports—which you are pleased to intimate would be acceptable, and which no one else but the pseudo "Veritas" ever attempted to impugn—but also to ask, on behalf of the province, your editorial notice of Mr. Selwyn's important pamphlet.—*Halifax, N.S., June* 3. ACADIENSIS.

* Reprints (from the *N.S. Mining Gazette*) obtainable of Messrs. Trübner and Co., Ludgate Hill, London.

MINES AND MINING ON LAKE SUPERIOR.

SIR,—Notwithstanding the very favourable price of copper existing, and which in all probability will continue for a long period, there does not appear to be that spirit among the different companies one would imagine. True, the miner stands out for and is getting an increased pay, but not nearly in proportion to the rise in copper. Miners formerly getting from $45 to $50 a month can now command $60, and in some cases $65, and so on, while copper has gone up from 18c. and 19c. to 33c. and 34c. per lb. There are several mines here, if the true value of them could be established in the minds of the proprietors, or any other capitalists, would not be idle 24 hours, but would be in full blast, paying a higher interest upon the capital invested than could be expected from any other investment made. In former days large sums of money have been spent to educate those in charge—even the most practical miner for any other section of country was only, as we term it, a greenhorn here. But now the country is cleared up sufficiently, good roads made, houses built for the accommodation of all classes of men and their families, rendering transportation good, and now all that is wanted is a little capital to be applied directly in the underground departments—in most instances the rock is by no means very costly. In many instances, in Cornwall, there is a higher price paid per foot or fathom than is usual here, notwithstanding the great difference in the price allowed miners in the two countries. If miners here get high wages they have to work hard, and work 10 hours per shift or core.

Another important advantage adding to this mining district is a railroad, which is already extended to La Anse, not over 30 miles from Portage Lake, and 40 miles from the rich Calumet and Hecla Mines. The latter mines consolidated are producing 750 tons of ingot copper monthly. This railroad, without a doubt, will extend through all this section of mining country, and is connected with Dulath at the head of Lake Superior, commanding a run close by all the copper and iron mines of Lake Superior. This, of course, will greatly reduce the cost of transportation as compared with the steamboat charges. Besides this, it will enable miners and all classes of men to travel much cheaper, and at all seasons of the year. Coupling all things together, it seems a mystery that mines of such wealth for native copper should remain idle. Allow me the question, What are the mining capitalists about, those who are so famed in mining in all parts of the world—why do they not send over a good, sound, honest engineer to examine what this Lake Superior is? They would find many who would assist them in obtaining the right property for investment. In many instances 15 to 20 per cent. profit could be relied upon, commencing a year from the time operations began, and on an outlay of from $20,000 to $50,000 as working capital.—*Lake Superior, June* 8. A MINER.

ISLAND OF ARUBA GOLD FIELDS.

SIR,—It may be satisfactory to all interested in the welfare of the above company, that the reports from Mr. Newman, the present manager in the island, received by the last mail (and which the writer is informed can be seen by shareholders in the company on application to the secretary) are cheering.

Mr. Newman's residence for two months in the island after his arrival from and experience in Australia, has allowed him a practical opportunity of arriving at an impartial judgment of the auriferous lodes, deposit, and drifts, before treatment thereof. When he can judge by returns from treatment of bulk, the shareholders will, in all reasonable probability, agree in saying the "venture" is a good one.

VERUM.

ASSAYING AND PRACTICAL EXPERIENCE—No. II.

SIR,—If further proof were required of the satisfactory results obtainable by a chemico-mechanical arrangement to rescue the whole of the gold from its matrix, I have been favoured with an instructive instance this week. A quantity (6 lbs.) of auriferous quartz, from Australia, assaying 21 ozs. 4 dwts. 16 grs. per ton, after picking out all visible gold, amounting to 10 grs. per lb., was submitted to the action of Rickard's patent amalgamated concentrator. True to the tradition recorded in your last issue, the success was eminently transparent, as the following report which I volunteered will testify:—"Taken 6 lbs. of gold quartz (very finely pulverised), containing by assay 21 oz. 4 dwts. 16 grs. per English ton, after removal of 62 grs. of visible gold. Witnessed its progress through the machine. Strained the mercury through chamois leather, and obtained, from resulting amalgam, 11 grs. of pure gold upon cupellation; of the remaining 20 grs. a portion remained with the bulk of the mercury, another portion coated the surface of the copper plates." Practically the whole of the available gold was removed, as two assays, of 200 grs each, gave the veriest trace of the noble metal—much less than a 1000th of a grain from 400 grs.—whereas the ore itself originally yielded from a like quantity 0·260 grs. I consider this a triumphant reply to the question of gold and silver tailings demanding special attention after the removal of the precious metals by the ordinary and imperfect methods now almost universally in vogue. W. WHITE.

Laboratory and Assay Office, 25, Finsbury-place, E.C., July 3.

MINING IN CARDIGANSHIRE—MANAGEMENT.

SIR,—The Florida Mines are situated within three miles of the Strata Florida railway station. Some years ago they were worked by a London company, under the name of Abbey Consols. In 1856 it was making profit, and would have returned more, but the machinery was quite inadequate to deal with the resources of the mine. The underground operations at that time were carried on very judiciously; but not having ample machinery, the then agent was obliged to succumb to the power of the directors, and their control being strong enough, the management was changed. A new manager and captain were installed, with all available new and powerful waterwheel and other appliances strong enough for the development of the lodes. House and stable was built for the accommodation of the resident agent, which was foreign to the other captain. Nevertheless, with all these advantages, very little energy was displayed in opening and developing the mine—only working on the reserves of orey ground at that time made available. There is not the least doubt if sufficient orey ground was opened, tantamount to the ground that was being exhausted, the Florida Mine at that time might have been on the Dividend List.

There has been a natural tendency in new managers, and that to the destruction of mines, to follow up every piece or bit of orey ground, or, in plain words, to rob it, to make a show of their knowledge (?) of the additional quantity of ore he or they for a month or two could obtain, so that his capabilities may be more distinguishable than the one whom he succeeded, leaving the word "legitimate" go to Jericho. But, alas! the end is far worse to the shareholders than the beginning.

As soon as the capital of the Abbey Consols was exhausted the machinery was sold, and the mine laid dormant for several years. One Capt. J. Williams, with his penetrating eye, got possession of the old mine, and, marvellous to say, by this time the prospects are astonishing. Finer heaps of ore I have seldom seen, and the profit is increasing rapidly. By only looking at the matrix of the lode it will convince the most prejudiced of the richness of the mine. The mine now is being opened in a manner which will, ere long, rank highly on the right side of the ledger.

Another thing I noticed on my visit was the great economy on the dressing floors, and the cleanliness the dressing machinery was kept in, which saves a great deal of friction. Instead of being clogged up with dirt they are well preserved, and is a great saving in oil and grease. The surface operations are carried out gradually, with sound scientific experience, and Capt. Williams is entitled to great credit for his perseverance and energy (and with small capital I was told) in bringing out such a superior mine.

Two miles west, on a parallel lode with Florida, is Bronmwyn Mine. Having opened conversation with a very intelligent miner, I was pleased to hear that this mine also is under the management of Capt. John Williams; that they have driven east and west of engine-shaft about 100 fathoms, in a lode that will produce 1 ton at least of silver ore per fathom; and in the 20 fm. level the lode will produce 1½ ton per fathom. I presume the mine belongs to two or three gentlemen; no doubt it will prove a long source of profit to them and their families. Having had much to do with mining in Wales, I have noticed there has been too much habit reigning almost

supreme amongst some shareholders of changing their managers and captains, and sending others to succeed them that know no more of the geological strata of Wales than the "Shah," in fact, they never, perhaps, ever visited a single mine in Wales before. I also apply this to many captains in Wales who never had the opportunity of studying Cornish mines. When the mines are on the eve of making profit there goes out notice to quit to the manager or captain, who has devoted years of study and labour to a certain mining district, knowing the lodes and their peculiarities. The duty of a mining agent is arduous and responsible. How many I have seen devoting their time to balls and billiard rooms, squandering away their money and their employers' time by so doing. It is such things as I have noticed that have caused the ruination of many a good mine, whereas the one who studies the interest of his employers, although he has obstacles in his way, he encounters them fearlessly—he has slides, heavages, caunters, &c., to study; a keen observer of many a nasty prank the lodes give him; scores of perplexing questions to answer, and more to solve. To obtain the services of a good industrious agent, and one that is not afraid of taking off his coat and putting his shoulder to the wheel, the service of such an agent cannot be too highly appreciated. The success of the Florida and Bronmwyn Mines must be attributed to the great industry of the manager. R.

CORNISH BYE-WAYS—No. I.

Stopping for the night at Lostwithiel, I find it by no means a lively place. Knowing it to have sent two members to Parliament, to have been formerly the seat of the Stannaries Court, and to possess at the present moment a live Mayor, or Recorder, to say nothing of capital burgesses, I do not mind confessing to a feeling of disappointment on seeing the place. The cheerful announcement of the railway porter that the last train for town had left (maliciously adding, "Gone only ten minutes, Sir") struck terror to my soul as I reflected that this indicated passing the long summer evening in a melancholy, decayed, Cornish borough, probably alone; for, where every third man is an ex-mayor or burgess (or expects to be), could it be expected that they would be unmindful of the fact, and mix socially with a stranger. "I may be doing them a grievous injustice," I mused, on observing one or two old-fashioned inns. I look in—vast rooms, whose rafters have once shook with the laughter of the "free and independent electors"—now all is desolation. One or two smug-faced gentlemen (former M.P.'s), in mildewed frames, smile vacantly from the walls, but the principal feature is a bill announcing a sale of wreck.

The landlord himself is a wreck, and though from force of habit he still sits in the parlour, as men with us will sit in the Exchange, expecting some one who never comes, he knows well enough that even the old coaching days—which for the sake of distinction I shall name the Renaissance period of Lostwithiel—are gone for ever. A red-nosed choleric sort of man, probably an ex-mayor, is saying aloud, "Well, I call it a shabby piece of business for the Duchy to do, and I hope no one will offer for it." The it, on enquiring, I find relates to the ancient Stannary Court and Prison—buildings probably of the Tudor period—for the sale of which the Duchy are inviting tenders. The step is certainly to be regretted in every way; the amount realised will probably be an insignificant sum, and as the purchaser will most likely pull down the building at once, there will be an end to one of the landmarks of the county. Far better pull down and abolish the Court at Truro: the oppression exercised here is all but forgotten, while the structure is an interesting relic. I say all but, as on referring to the oldest inhabitant I find he can remember miners being incarcerated for neglecting to pay the customary "dish," or dues, to the Duchy. He adds, "One of the gaolers was called Bluett, and I well remember the last prisoner having an old shoe fastened to a string, which he suspended from the grating, and in it, when we were so minded, we placed bread and money, or even tobacco."

The judges' bench, railing, and dock were still standing I was informed. Stout iron bars traverse the slits in the cells, and, no doubt, most of the imprisoned would have demurred to the lines—

"Stone walls do not a prison make,
Nor iron bars a cage."

Facing the river which flows down to the ancient port of Fowey is a massive archway, rivalling the famous Traitors' Gate of the Tower. Not far away stands the oldest inn in the town, named after a victim of the Tower—the Duke of Monmouth. The poor unfortunate Duke had several followers from this part, many of whom doubtless, remembered the time when King Charles himself was glad of the friendly shelter of the adjoining woods of Boconnoc. Returning to the inn I encounter a nondescript character having the appearance of a broken-down schoolmaster, whom I had previously observed hanging about the station. He invites me to visit Restormel Castle, but on noticing its elevated position I unhesitating decline. A young farmer in front of the inn is exhibiting his horse disfigured with warty excrescences, and assuring the bystanders that the animal has experienced great relief since a famous local "sorcerer" was induced to charm away the disease. Name and address of this worthy, with other authenticated cases, are given me, and vouched for with the greatest confidence. The landlord I find seated in the same position, but looking a trifle more cheerful, a couple of tradesmen having looked in and ordered "two glasses of whiskey, hot, with a slice of lemon." A hearse-like bed has been got in readiness, and I prepare to retire, rejecting for the second time the proffered assistance of my would-be guide, who now presses me to visit the Restormel Iron Mines. I caught the train the following morning, and so took my leave of a town which, after being the leading tin coining centre for centuries, now can hardly produce a single slab. MONTHLY TICKET.

MINING IN MONTGOMERYSHIRE—No. II.

SIR,—Having perambulated the CAE CONROY dressing-floors, we were just in time to accept the captain's invitation to a sit down in the office, where during an interesting discourse we elicited much valuable information respecting the mines, &c., of the district, and, prominent above other things, the establishment of a Mining Class and Library at the Pennant village, this being the most central place in the district.

Adjoining CAE CONROY and LLANERCHYRAUR on the west, and on the same run of lodes, is the CAELAN MINE, one of the oldest mines in the county. This mine has been in several different hands, none of whom seem to have done much good by it: at present it is worked privately, by a gentleman resident not far from the place, and, doubtless, when the objects they are at present aiming at have been achieved the mine will soon enter the Dividend List.

On about a mile west we come to BRYNFEDWEN MINE, at present suspended. This mine is also on the Cae Conroy lodes, and was worked 15 to 20 years ago by the Messrs. Taylor, when large quantities of mineral were raised. Several attempts have recently been made to resuscitate this mine, but there seems to be a link short somewhere. Doubtless one great drawback is the limited extent of the sett.

Again, adjoining this sett, and on the same lodes, is the RHOSWYDDOL MINE, once very rich, but of late getting sadly into the shade. My guide, "superstitiously," attributes it to the introduction of patent dressing machinery; this I will not vouch for, but, after going through the mine, I myself believe that were a little more attention paid to the underground department, and less to the model dressing-floors, than which I suppose there is not a more elaborate in Wales, the mine would be materially benefited thereby. There are two or three small mines yet to the west of Rhoswiddol, but as they are unimportant we trace our steps south towards DYLIFFE MINES, which are near four miles off. Passing undoubtedly many valuable mines in embryo (which shall be the subject of another letter hereafter), we arrive at DYLIFFE, but wishing to see the PENNANT DYLIFFE MINE we pass by the old mine, intending to return again shortly.

The PENNANT DYLIFFE, a very promising young mine, adjoins the Dyliffe on the east, and augurs well to become a valuable property. It is at present being worked by a local party.

The DYLIFFE MINES, although worked privately, are pretty generally known, as being about the richest in Wales; they have been in full work this last 40 years, during which time the average produce has been about 150 tons of lead per month, and it has returned to its fortunate proprietors over 250,000*l.* in profit. But during the last few years the mine has been worked "colliery" fashion, and the consequences are, as might have been anticipated, the ends stopped as soon as they became unproductive, No new runs of ore were discovered, therefore reserves that had accumulated soon got exhausted; the returns consequently decreased, and Dyliffe, which had been for over a quarter of a century in the van of the Montgomeryshire mines, had to give place to its rival, the Van Mine. A few months since the mine changed hands, when a little fresh blood and vigour were imbued into it, and well has the old mine answered the call, for in the short space of three months there are new stopes laid open valued at over 50,000*l.*; and whereas three months ago there was not an end in the mine working that would produce 1 cwt. per fathom, at the time of our visit of five ends driving one would produce ¼ ton, another 1 ton, two over 2 tons, and the other near 4 tons of lead per fathom. This all in new ground is conclusive evidence that the old mine still contains abundance of ore, and only requires a little vigour and system in its development to again take its place as the richest mine in the county. There is here one phenomena (if it be so) that ought not to go unnoticed, and that is, the bottom level is one of the richest; this level is 105 fms. below the adit, and near 170 fms. from grass. Where now, Sir, are those theorists who awhile since would have us believe that our mines would not be productive in depth? The satisfactory manner in which the mine has during the last few months been worked reflects great credit upon the present manager, Capt. Evans, and to those who knew the mine a few months since it is quite evident that here at least is the right man in the right place.—*Llanbrynmair, July* 1. PEDESTRIAN.

THE SILVER LODE AT CALLINGTON.

SIR,—As I have lately visited this locality I beg to offer you a few remarks in reply to your correspondent's desire to know something more of the "new silver discovery" (in his letter in last week's Journal). It may certainly be called a remarkable discovery, and is due to Dr. Sargeant's perseverance, aided by his experience and knowledge of the geology of the district. The southern slope of Hingston Down has long been known for its silver lodes, which were formerly worked by Capt. Malachi, and others afterwards; and the silver is so disseminated that the parallel copper lodes are distinguished by their containg a profitable percentage of it. The position of these silver lodes are east and west, and they are embedded in a variegated stratum (arenaceous and argillaceous killas), and they are not opposed to granitic or volcanic rocks, neither are they traversed by any lodes, which may account for there not being so many lodes as anticipated in the unsettled ground eastward of the Pengelly basin at Callington. The geological conditions of Dr. Sargeant's discovery are very different from this. It is further west, and his lode is probably a distinct one, as its angle bearing is different. It lays in a more uniform and compact killas, on the southern flank of the granite of Kitt Hill on the one side, and abutting a great protrusion of volcanic kind of greenstone on the other, and between the influence of these quasi-igneous rocks it may owe its valuable character. The exploration consists of an open cutting in this argillaceous stratum of about 2 to 3 fms. deep, in which the lode has a slight dip south, and runs within a few degrees north-west and south-east. The lode is 18 to 20 in. wide, of a silicious and chloritic character, and contains a branch 2 to 4 in., rich with grey silver, although the metal is disseminated through all the lode. The assays of Mr. Jenkins, of Callington, have produced from 500 ozs. to 2000 ozs. of silver per ton of ore. Nearly a ton of ore has been taken out of this small excavation, which averages about ½ a ton per fathom, and is probably worth 100*l.* to 200*l.* per fathom, more or less.

Explorations have been made on the course of this lode in the adjoining sett of Florence and Tonkin, wherein it has been discovered, bearing westward towards a north and south lead lode, the junction with which will soon be discovered, and will most likely be a matter of still greater interest to this neighbourhood. I have only further to remark that a visit to this district will amply repay any student of geology, and I think my own ramblings over the surroundings of Kit Hill, as a central point, have given me such experience as to offer my explanations, as given above, with firm confidence. There is a better future for Callington, although the people of the town and neighbourhood, with a few exceptions—such as the Portreeve, and such kindred spirits—are not generous supporters of mining procedure. My previous observations will have led to a recognition of the important intersection of the silver and lead lodes in the Florence and Tonkin Company's sett; and as they are now actively exploring the Pengelly sett, when the junction takes place you may look forward to a very important discovery. TOURIST.

London, July 2.

PENGELLY MINE, CALLINGTON; FLORENCE AND TONKIN; AND THE NEW SILVER DISCOVERY.

SIR,—My earnest wish for many years past has been to obtain a grant of the sett known as Pengelly, south of Florence and Tonkin Mines, Callington, and I had many competitors vying with me in the endeavour to acquire the concession. The estate being so very valuable at surface, as well as rich in its geological evidences for mineral, there was a determined disinclination to grant until a year ago, when the Florence and Tonkin Mining Company, after setting their mines to work in a vigorous and business-like manner, were the fortunate party to obtain this valuable acquisition to their other new grants from Lady Ashburton's trustees. Having had a knowledge of the district for many years, I read an announcement in last week's Journal that a rich silver lode had been opened on by Dr. Sargeant, of Callington. I know the trial pits all around the successful spot which he has, with the most energetic perseverance, had opened, in the hope of a successful issue in becoming another "Malachi." There are two or three of these silver-bearing lodes running through Harrowbarrow, Wheal Brothers, and on their course towards Callington; and anyone who has traversed the valley from Calstock to Callington, with only an elementary knowledge of geology and mineralogy, must have been impressed with the very peculiar changes, both as regards configuration of surface and strata, as presenting evidences of a rich field for mining enterprise. In this valley I have been underground with Capt. Knott, at Wheal Langford, and have broken beautiful specimens of pure silver "frosting" the gossan; and I have always, for 25 years past, looked hopefully for a grand discovery of silver ore in this direction. It has now made a sign. From information which has reached me, the assays made of ore from Dr. Sargeant's discovery give a yield of two to three thousand ounces of silver to the ton.

But now for the object of this letter. The discovery alluded to is only a few yards from the eastern boundary of Pengelly estate, the mineral sett of which, as before stated, is now held by the Florence and Tonkin Mining Company (Limited). A geological section of this part of the district presents most interesting features. A magnificent lead lode passes directly through Florence and Pengelly, showing very important mineralogical indications, interspersed with an abundance of mundic, decomposed felspar, hornspar, &c., underneath large masses of splendid gossan, occurring for a long distance in the line of its bearing through a pan of plombiferous clay-slate. The celebrated sliver-lead lodes of Menheniot, near Liskeard, are similarly situated, as also the district geologically. On a reference to the maps of the Ordnance Survey it will be perceived that this great lead lode in its course south through Pengelly sett intercepts the silver lodes of Harrowbarrow in their direction westward before it abuts on a large volcanic rock further south, the influence of which is very remarkable in Menheniot and other lead districts for the concentration of mineral in lodes in their proximity. The junction of east and west silver-bearing lodes with this great lead lode in Pengelly sett will assuredly lead to a magnificent result, because if analogous influences have to be regarded in mining operations, the conditions here manifested are such as to justify the expectation of a prosperous future for the Florence and Tonkin Company, and a revival of the good old times when carriages rattled over Callington's roughly-paved streets with fresh news of success, and old Malachi's accumulations of silver. May it be; and shared in by all good and spirited mining men who are applying capital to the development of the district.—*Civil and Military Club, London.* A WELL-WISHER.

TIN MINING, AND TIN DRESSING.

SIR,—It certainly would be a waste of time, and not only so but a mis-direction of effort, to reply to the communication of Captain Parkyn, which was published in the Supplement to the Journal of June 28. It would seem as if he were desirous of prolonging the correspondence merely for the sake of bickering; or if he has another object it is probably the advertising of himself. But whatever his object may be, it does not appear to me to be of any public interest; and I shall most emphatically decline to contribute in any way for mere party purposes. But, with your permission, I will proceed with my remarks on the subject upon which I have entered without any further reference to him or his letters. My object in writing is not a personal one, but to assist in improving, so far as my individual efforts may contribute to such a result, the general conduct of mining; and if I come into collision with parties in the *Mining Journal* it is with this object, and not because I entertain any ill-feeling towards them, or have any personal interest to promote. As to envy, an ancient writer has said that "Men verily swear by the greater;" and I may also be permitted to say that the objects of envy are generally found amongst that class, and not on the other side of the social plane.—*July* 10. MINE AGENT.

REMARKS ON TIN DRESSING AND STAMPS GRATES—No. II.

SIR,—In my last letter it was premised that the present method of stamps feeding made it very difficult, if not utterly impossible, to introduce any improvement of much importance in the grate department of stamping. I shall, therefore, begin by saying that the construction of the stamps pass now in use is a blot upon the escutcheon of Cornish mining and mechanical engineering. It was, no doubt, constructed with a view to self-feeding, and as such it has hitherto been considered; but if its eccentricities in that line be taken into the account—at one time rendered wholly ineffectual from absolute deprivation of feed, and then again feebly struggling in the throes of suffocation from ill-administered excess—it will need no words of mine to show how ill adapted it is for the purpose intended. If it were really a self-feeder it must have been so constructed as to regulate the quantity required in such a manner that its efficiency of action should never be impaired by too much or too little at a time. The digestive organs of animals are rendered comparatively inactive by excess, but that is tame in comparison with the somewhat ludicrous appearance of a stamps in operation when glutted; its efforts are rendered wholly abortive from a casual suspension of its power. But I need not take up your time and my own nor multiply figures, to show the ill consequences which arise from the present method of stamps feeding.

The stamps pass, to admit of a properly constructed grade for the discharge of the pulverised ores, should be so arranged as to feed when it was required, and as it was required—that is to say, that in a stamps with a 10-in. pitch no more than an average inch of stuff should be in the battery at any one time, nor but little less than that quantity, and hence the arrangement should be made with that delicacy that when the battery bed was reduced a little below that average a little more should be fed into it, and the feeding at once cease when sufficient had been communicated to reach that average, or a very trifle over. This, it will at once be seen, will require a very accurate or stringent method of feeding, self-acting and self-regulating, exactly proportioned to the requirements of the stamps, and the maintenance of an average effective drop or blow of 9 in. in every stamps having a 10-in. pitch. This of itself would be a considerable improvement over the present method, and would result in a very large increase of duty. But when to this it is added that 40 per cent. additional area may be made to the avenues of discharge, the grate-way—which 40 per cent. may be reckoned as an actual increase of duty, because no reason can be assigned why a set of grates in the back of the stamps should not discharge as freely as those in the front, and which by a proper adjustment of the pass might be fixed as conveniently as the front grates are, and be in all respects their counterpart—it must be admitted that, even with the present style of grates, a very large increase of duty would be effected. But this is not all. Scarcely half of what may be done in the way of improving the efficiency of the stamps in detail has been accomplished, for instead of having grates which oppose 80 per cent. of their surface to the discharge of the crushed ores, we might have them affording 80 per cent. passage-way for such discharge.

From time immemorial a device has been in operation for turning stamps worked by water-power idle when becoming impoverished from paucity of feed. It is marvellous that it never seems to have occurred to anyone to apply a similar device to regulate the supply of feed and ensure its continuance, and thereby preclude the necessity of turning the stamps idle from the want of work, while at the same time unlimited quantities were awaiting its operation, but which from a casualty, through a clumsy contrivance, were obstructed in transit, and the communication suspended. It needs only a little difference in the construction of the pass and an inversion of the method now employed—or an inversion rather of its application as now employed—in turning stamps worked by water-power idle to ensure their much greater efficiency and constancy of action. A lever and percussion is employed in the one case; a lever and percussion is all that is required in the other. With such a contrivance a wire screen might be employed to supersede the present obstructive, sparsely perforated sheet-iron stamps-grate, so that, instead of having 25 holes to the square inch, 125 of the same size might be had if desirable.

To admit of sets of grates in the back as well as in the front the stamps the pass must be more elevated, and the feeding consequently take place higher up, which may be done without the slightest inconvenience or disadvantage in any way whatever, and the grate water required be used through the same apertures. The advantages which would follow from the changes proposed can only be approximately estimated. In the first place, the full effect of a 9-in. blow by each individual stamper would be constantly secured, and that, in my opinion, would add of itself from 15 to 20 per cent. to the effective duty of the stamps. In the second place, there would be an increase in the area of the grate-way of fully 40 per cent., which percentage may fairly be estimated as an actual increase of duty. And, in the third place, by superseding the present obstructive grate by a wire screen, from 50 to 70 per cent. greater freedom would be secured, and would also at once do away with the cause of complaint, if not the actual prejudice existing in some quarters against the heavy stamps heads and lifters now in use in some places, by preventing the tin to a very considerable extent from being stamped too fine. It is a greater freedom of discharge of the pulverised ores from the stamps, added to an accelerated action of the stamps itself, which is needed, and I know not how the first can be secured without an alteration in the method of feeding, nor the second without some minor alterations in the structure of the stamps. No wire screen could resist the pressure arising from the falling of stamps heads upon accumulated heaps of stuff in the battery, when filled, as it sometimes is, to near the level of the top of the grates, and which the comparatively strong and unyielding perforated plates of iron now in use are frequently unable to resist, but are forced clear out of the stamps through the glands. When occurrences of this kind happen, or are discovered to have happened, the stamps are at once stopped, the lifters suspended, and a formal digging-out process prosecuted prior to its being set to work again. Casualties of this kind, it will be readily understood, add considerably to the cost of material, besides impeding the progress of the work.

Whatever may be the immediate effect of giving currancy to these ideas, I have no apprehension in regard to the future. The Cornish stamps, so perfect in principle, must be made correspondingly complete in all its accompaniments and detail, for prejudice, however much opposed to the introduction and recognition of new and improved methods, must give way to the rising light of a better knowledge—cease its antagonism, conform to its dictates, and yield to its supremacy. The epithet "drudge" has not inappropriately been applied to the Cornish stamps; the cause of this should be removed.

and must be. Stamps can be so constructed as to work 120 instead of 60 revolutions per minute, without reducing the lift or drop a single inch; but this will involve a modification of the medium by which the motive power is applied, and very probably some other parts of the stamps—certainly the substitution of a wrought-iron shaft and cams instead of the present cumbersome cast cylindrical pile, with its multitudinous tappets, like the barrel of an organ. The future success of Cornish mining, from all that can at present be inferred from the prospects, will depend not so much upon the produce of its tin mines as upon the cost at which that produce can be made marketable, requiring, as it does, a constantly recurring process and a diversified mode of treatment in its preparation for the market. Besides, that with each of these recurring modes of treatment in the process of dressing an additional liability to the loss of tin is experienced. MINE AGENT.

THE PROVIDENCE MINES MEETING.

SIR,—Mr. Higgs, the purser, while addressing the adventurers on June 25, after enumerating my name as one of the managers, is reported to have said—"He left for South America, and Capt. Hallam succeeded him at the mine in 1860. At that time the mine was in a very low state, and required a great deal of care to bring it into working trim." Will you permit me, Sir, to ask Mr. Higgs how he can reconcile these remarks with the contents of his letter, which I enclose?—*Lelant, Hayle, July 2.* A. ANTHONY.

"Penzance, June 2, 1860.

"DEAR SIR,—You will receive herewith statement of the last quarterly account, copy of resolutions, and agent's report, and also cash order for the twenty guineas. One of the resolutions refers especially to yourself,* it may not be out of place for me to refer to your 20 years services in these mines—the first nine years you were employed in every kind of work incident to the education of a good practical miner; you were the appointed agent, and, about three and a-half years ago, manager of the mines. During the time of your management I think it right to record that the adventurers received over 30,000*l.* in dividends. The plant on the mine has improved 3000*l.*, by erecting two engines, and fixing 250 fms. skip-ways, in two shafts, AND YOU LEAVE THE MINE 18,000*l.* IMPROVED IN VALUE.

With best wishes for your future success, believe me, dear Sir, yours very truly,
Capt. Arundel Anthony. SAMUEL HIGGS, Purser."

* Capt. Arundel Anthony having given notice that he will retire from the management of these mines at the end of the month, resolved—"That the best thanks of the adventurers be given to him for his valuable and faithful services, and that he be requested to accept a present of twenty guineas, with the best wishes for his future success."

DRAKE WALLS MINE.

SIR,—I have observed in the Journal several letters disparaging Drake Walls Mine, but I note that the parties attacked have not thought such remarks worthy of their notice. The report in last Saturday's Journal was the best refutation. From it I note that some of the burrows are let at 8*s.* in 1*l.* tribute, and that (a most remarkable circumstance) responsible and able men have taken a contract to dress the slimes and sand heaps in the eastern part of the mine at 12*s.* in 1*l.*, and to pay all returning charges. I note also that as quickly as the mine is drained pitches are set at 10*s.* to 1*l.* These facts must satisfy any unprejudiced individual that something good is to come out of Drake Walls.

Reflections are needless, and aspersions on what is really good will only recoil on the parties making them. FAIR PLAY.

DRAKE WALLS, AND ITS MANAGEMENT.

SIR,—Kindly allow me a short space in your valuable Journal of this week to explain two or three facts. In my last letter a slight error occurred in copying. It should have read "*Nearly* 20 years I have been connected with this mine as agent, and *part* of this time as manager." I have of late been much from home, and have no access either to books or uninterested reports on this mine made from time to time at the request of the directors, by such able and talented men as Capts. Charles Thomas, Francis Pryor, John Prince, Seccombe, Vivian, Harris, Rogers, and others.

I find, after an exhaustive report on this mine by the late Captain Charles Thomas, that Mr. Williams and Mr. W. J. Dunsford (the latter being one of the directors, and lessee of the mine) being in Cornwall, they write me as follows:—"In respect to your enquiries of how we should proceed to work the low-produce veinstuff and halvans—that is 'old burrows'"—Capt. Charles Thomas is of opinion that it will take up the whole of your dressing water and put the western workings at Brenton's dressing-floors and your water-drawing machine idle, which, of course, would cause a suspension of the western workings underground and at the surface; and from his examination and opinion of the low-produce veinstuff and halvans he considers them of little or no commercial value to the "company."

Whitechurch, Tavistock, July 3. THOMAS GREGORY.

REVIEW OF MINING FOR THE FIRST HALF OF THE YEAR 1873.—No. I.

SIR,—As I predicted in my Annual Review of British Mining, published in your valuable Journal in January last, The Van, situate in Montgomeryshire, will take the "chair" for the year 1873 in respect to amount of yield and labour, and also extent of gains to the proprietary. Two dividends of 12,000*l.* each have been declared during the first half of the current year, and the future is full of expansive prosperity. The surrounding mines may be regarded as fair speculations, exhibiting strong promise, with patience, judicious outlay, and practical development, of ultimately becoming ordinary paying concerns—*i.e.*, Van Consols, Aberdaunant (several sales of lead, and by far the most advanced and promising), with East Van. The holders of shares, however, even in these, must not be too confident of success, nor must the public anticipate too early, or even as yet certain, far less established, prosperity. Investors will do well to remember that market fluctuations, contra dividends from excess of yield over costs of production, are very distinct and different affairs. They often prove as heterogeneous in practice as is the growth of wealth from earnest industry, when compared with the dissipation, unhappily too often recorded, of the accumulated hoards of ancestors when they become inherited by the favoured child of fortune. Van Consols was among my selected mines in January last, and I am pleased to learn that at last 200 tons of lead are sampled, of the computed value of 3200*l.*, while the different points of operation are valued at 370*l.* a fathom. The company consists of 75,000 shares, of 2*l.* 10*s.* each—say, 37,500*l.*, a capital approaching the purchase-money of the Van, now paying close on 50,000*l.* annually. The prices of shares in Van Consols have widely fluctuated since my recommendation, yet all who followed my suggestions would have received profits through watching the markets. The present value is about 77,500*l.* for the entirety, and if the "points" be really worth 370*l.* a fathom the shares are cheap, and the price ought to advance. Any miner of practical skill and earnest attention to his duties would break at least 5 to 6 fms. of ground monthly, on an average, from each of the bargains, which for the six months remaining of the year will give 750 tons of lead, worth 16*l.* a ton—say, 12,000*l.* or 125 tons of ore monthly. The mine should yield this quantity of ore, else there must be bad management, or exaggerated reports issued.

For the information of the student of the Science of Investment, I subjoin my analysis of the report printed in last week's Journal:—

Forebreast—25 fms. level east promising; no stoping, rising, or sinking.
ditto 35 fms. level, west of rise, no value; four stopes valued respectively 80*l.*, 40*l.*, 25*l.*, and 20*l.* per fathom.
ditto 45 fms. level east no value; stope 15*l.* per fathom, and winze 80*l.* to 100*l.* per fathom.
ditto 60, east of Gundry's, promising; rise above 10*l.* per fathom.

This mine at best is only half a one, as the workings are all being extended eastward; the pioneer points are all valueless, and discovering no ores at present, while the returns are being made wholly from reserves. This is a sample of a market mine, and shows the necessity of the investor consulting practical mining engineers.

Wheal Tregoss, I am credibly informed, really declared a dividend of 750*l.* in January last, and Wheal Whisper of 250*l.* in May. These mines are new to the public, and constituted upon the Limited Liability Principle; hence it would inspire confidence—or, to say the least allay discussion—were the directors to publish at the close of the half-year a statement of "revenue and expenditure." If these dividends were fairly earned the shares should be quoted in your list; and why should they not bear a premium commensurate with their actual worth and prospective capacity for expansion? I await further data and intelligence ere expressing an opinion in either case.

Dolcoath last year declared dividends of 45,645*l.*, but up to this date only 4396*l.* for the half-year just concluded, and even should they be doubled for the current half-year the market value of 57*l.* per share is unquestionably high; the total would then be but 3*l.* for the year—say, 19 years purchase. This mine has many peculiar features, and I shall not endorse or recommend it as an investment at more than four to five years purchase of dividends, and especially so after the experience of the last winter, and the conflicting interests, so slightly harmonised, associated with drainage and the preservation of adits. There are elements involved of the highest moment in respect to the future of this and other mines situate in the immediate locality, and which should receive prompt consideration and action from all.

Carn Brea has declared dividends of 6000*l.* for the past six months, and the stoppage of the engine on Barncoose lode does not send the water, as rumoured, into East Pool, but, on the contrary, it flows back into the old workings; hence Carn Brea will have to drain its own workings, unassisted by its neighbours. The dividends for 1872 were 15,500*l.*

Cook's Kitchen has paid for the half-year 919*l.*, against 9187*l.* for the former year. This has been an extraordinary good mine, is very deep, and must be excused many vagaries in its days of dotage. This mine is more suitable to conserve the vested interests of Cornwall than to enrich the absentee shareholder from substantial dividends on his capital. The merchant, manufacturer, and landlord can be benefited, while shareholders can never grow rich. Hopes too long deferred never advantage anyone. Trumpet Consols has passed from the Dividend List; the 8000*l.* dividends declared last year were evidently not earned, and the public mark their censure of such management by refusing to invest; hence the shares have receded 50 per cent. It will take a long time to inspire confidence, and, if all be correct that is rumoured, there may be no dividend declared even for the current half-year. It is a bad principle to credit tin not sold in order to bolster up a dividend; the price of shares may be kept up for a time, but the rebound is certain to follow.

The Lovell is opening out well, and there are strong evidences of increased dividends. The yield of tin is exceptionally large in proportion to costs of production; there are two ends opening ore 100*l.* per fathom, and the shaft is worth 200*l.* per 12 feet—thus pioneer points are worth 400*l.* per fathom. The Mingearne Mine, adjoining, is reported most favourably upon, while the East Lovell promises at no very distant date to appear again in the Dividend List.

East Pool Mine is now experiencing the sad results arising from inefficient draining power. It is suicidal to the interests of this property not to amalgamate with Wheal Agar, and the sooner that an amicable arrangement takes place the better for both parties. Good mines in Cornwall are too scarce to be sacrificed upon the altar of false contention. Why should the executives stand at each side of the boundary line snarling like two dogs for the same bone? Five to one the Scotch terrier will win unless the Redruth "bull" snap his nose, for his ears are already snipped off. South Crofty also shows signs of resuscitation—slow progress when the price of shares is duly considered. St. Agnes Consols and New Dolcoath, two progressive mines, to which I referred in January last, have made satisfactory progress; in the 140 fm. level the junction of granite and killas met; the lode, so far as opened, is 9 feet wide, averaging 50 lbs. of tin to the ton of stuff—a far richer produce than the world-wide famed Dolcoath Mine, that paid close on 50,000*l.* profit during last year. South Tolcarne and West Godolphin are also two very encouraging properties, and may shortly command conspicuous attention. East Balleswidden continues to pay the usual dividend, while the prospects are daily improving; the costs of working are light, and the executive is earnest and practical. The average samples selected by the chairman and purser from the produce of the eastern end, at the 30, yields, by assay of Messrs. Johnson and Matthey, 148 lbs. of metallic tin to the ton of lode

North Levant, Botallack, and Wheal Owles have ceased to pay dividends; for the year 1872 they paid respectively 2800*l.*, 3200*l.*, and 1960*l.* There is no material falling off in yield, still the high charges for labour, coals, and merchandise so thoroughly cripple enterprise that even these undertakings have almost become valueless, otherwise than as supporters of the vested interests of Cornwall. Landlords should follow the enlightened example of Lord Robartes, and cease to charge dues when mines have to contend with such exceptional difficulties as now exist in numerous cases. His lordship's conduct at West Tolgus is most commendable, and it is to be hoped that others will act with equal liberality, and especially so in the cases of the many non-dividend mines included in the subjoined list.

Poldice is stopped, and thus practically closes the chapter of mining pursuits in the Gwennap district. In former times, and for a long period, the brightest page in Cornish mining was found to be here. The colossal fortunes acquired by many founded the prosperity of the trade and commerce of Cornwall. Not only did the county's mining interests expand and banking flourish, but its fisheries became a vested source of increased revenue and of permanent wealth; it became extended throughout the Mediterranean, and most of the shores of Catholic Europe. This district, unhappily, is now entirely swamped with water, and the old workings will require more steam-power for drainage than the whole produce would pay for. In fact, for all profitable purposes one might just as well attempt to scoop out the Mississippi with a tea-spoon as to pump out the water from the old abandoned and communicated mines of Gwennap. Emigration will do this locality good, otherwise the poor rates must necessarily run high, for there is no other description of business to absorb labour. Why is it that the population of Cornwall is so wedded to mining that scarcely any branch of trade or manufacture is known, otherwise than those directly associated with that single industry.

If we desire to succeed in life we must learn to take people as they are, and not as they ought to be. It is true that we should advance the standard of commercial morality if we can, but in the attempt we should remember the infirmities of human nature, and thus stand clear of the breakers ahead, otherwise the shock of the encounter may swallow up the "effort" in the resistless "swoop" of popular opinion. This position is most trite when applied to mining, for there is none of our home industries that present such a wide field for profitable industry, and at the same time allied with scope for diversity of opinion, as mining. The hidden wealth has to be found, and the laws of nature, in respect to mineral deposits, are so imperfectly known to the multitude of speculatiors, that almost every mining adventure stands upon its own merits, and is governed in its commercial status entirely by the opinions of those immediately connected with the undertaking. There is no ruling power constituting a standard of worth as in the case of a railway, a bank, insurance, canal, building, or telegraph company—so in effect a mine usually sells at such a price as the promoters or the dealers and brokers on the Stock and other Exchanges determine—hence arises the frequent fluctuations and the great discrepancies apparent in properties that seemingly are of equal value, or in instances the least worthy sell at the highest price; while, on the contrary, the most prosperous command the lowest market quotations.

Bampfylde has declared a first half-yearly dividend of 3000*l.*, or 10 per cent. on its capital (20 per cent. annually), and promises double, or 6000*l.* for the current half-year. This mine now sells for 150,000*l.* to 175,000*l.*, with 30,000*l.* fully subscribed. The rumours afloat state that rich copper ores, 235 tons; iron, 4000 tons; and manganese, 140 tons, of the aggregate value of 10,000*l.*, are now at the surface, and the public are invited to inspect the property and the results personally, as the directors desire everyone to see for themselves. If these statements be correct this property, two miles square, is certainly the greatest prize since the Van in British mining; but why are not the ores sold, and a statement of costs and products given, so that the actual gains be descried at a glance? This done, confidence would at once be established, the electric wires flash the intelligence from pole to pole, and dissipate the distrust now so self-evident in the minds of public operators on the London market like chaff before the wind! You may as well attempt to kindle a second Vesuvius from a heap of Somerset peat as to force those gentlemen to place credence in the unvouched rumours circulated about this Devonshire mine when they stand so firmly prejudiced to the contrary. Had the jobbers 5000 shares amongst them the case would be widely different.

Drake Walls is being changed into a limited liability company, while generally the cost-book, or rather the proceedings at the Stannaries Court, grow daily into greater disfavour. Why should this bugbear any longer cripple enterprise in mining?

West Jewell shares are all but unsaleable: 5000 preference 10 per cent. shares are created at 2*l.*, of which 2000 are announced as subscribed for. After the expenditure of this 10,000*l.* the next move will probably be the creation of 10,000*l.* debenture stock. Thus a first mortgage will become established, and when foreclosed the whole property, if successful, absorbed. The ordinary shareholders need not feel much disappointed, for in all likelihood the preference now created will secure but few 10 per cent. dividends. This is the first instance that has come under my notice of an old, indebted, and evidently losing mine creating preference 10 per cent. shares.

Phœnix has already declared dividends of 239,950*l.*, and is still a prosperous and comparatively a vigorous and youthful property, capable of great extension, and of corresponding expansive yield and gains. The management is sound, practical, and economical, yet, as the large bulk of shares is in one family, the operations are somewhat restricted when regard is paid to the great area of the sett and the many highly important points still undeveloped. If Mr. West, to whom we have recently alluded as an advanced engineer, miner, and banker, would but now become a philanthropist, he has a favourable opportunity in this and West Phœnix of benefitting both himself and the investing public. Why not constitute both the nucleus of a joint-stock company of 500,000*l. stock*, not *shares*, giving the vendors 200,000*l.* and funding 300,000*l.* to extend the workings now capable of jointly paying 20,000*l.* to 25,000*l.* annually, and of expansion to 50,000*l.*, while, in addition, several of the known productive mines in the locality could be opened with practical economy and dispatch, so that an excess of revenue of fully 100,000*l.* a year could be earned in four to five years, or (say) 20 per cent. on the entire capital? The public would promptly respond to such a scheme promulgated by Mr. West, whose experience is unbounded and his successes almost unparalleled. Thus, again, investment would be open to all classes, and prove a boon to each, for the stock could be purchased in any sums to meet the requirements of rich and poor, while the aggregate total would afford scope for the operations of jobbers.

Surely the two Phœnixes are worth the following mines:—

Van Consols	£ 95,000
Great West Van	50,000
Penstruthal	100,000
Ballycummisk	120,000
Brynn (St. Austell)	60,000
St. Breward Consols	75,000 = £500,000

The progress of the nation is uninterrupted, pauperism diminishes and the revenue augments. The social position of the masses is ameliorated and their education improved, so that prosperity in trade and commerce, with enhanced domestic comforts, surround Her Majesty's subjects. It is true that labour is scarce and in a state of transition that may yet effect still greater changes in wages. It is fortunate, therefore, in respect to national economy, that the money which exchanges hands is spent at home. The volume in circulation is enlarged, and every branch of trade benefitted through increased business, and, it is to be hoped, advanced gains. We must not grumble, even if living costs more than 10 to 15 years ago, for the masses earn more.

Dividends for the year 1872 and first half of 1873:—

Tincroft	£4800	0	0	£9,000	0	0
Dolcoath	45,645	0	0	4,396	0	0
Carn Brea	15,500	0	0	6,000	0	0
South Caradon	12,288	0	0	4,096	0	0
Kitty (St. Agnes)	8,590	0	0	4,296	0	0
Cook's Kitchen	9,187	0	0	919	0	0
East Pool	7,200	0	0	3,200	0	0
West Chiverton	4,500	0	0	375	0	0
Penhalls	2,500	0	0	750	0	0
Lovell	1,113	0	0	556	10	0
Castle an Dinas	500	0	0	750	0	0
Mary Ann	1,100	0	0	333	0	0
Wheal Whisper	500	0	0	250	0	0
East Balliswidden	400	0	0	400	0	0
Bampfylde	—			3,000	0	0
Tregoss	—			750	0	0
Killifreth	—			600	0	0
Exmouth	—			250	0	0
Seton	—			275	15	0

Dividend mines for the year 1872 which have declared no dividends for the first half of 1873:—

Trumpet	£ 8,000	Hingston Down	£ 6,000
Devon Consols	6,144	Herodsfoot	3,840
Phœnix	10,500	Basset	1,289
New Pembroke	2,240	Botallack	3,200
West Seton	3,600	West Frances	2,818
Marke Valley	3,600	North Levant	2,800
Terras	2,775	Cargoll	2,147
Jane	2,048	Gawton	1,975
Polberro	443	Providence	1,680
Owles	1,960	Great Vor	1,477
Grenville	1,912	East Caradon	1,436
South Carn Brea	1,875	Pendarves	512
Margaret	896	Kitty (Uny Lelant)	256
Uny	817	Shelton	500
Spearne Moor	121		
Total			£ 76,893

Investment, to be successful, must be earnest and searching, and it is a remarkable fact that the "talent" of the self-elected London market has been exceptionally unpropitious in its selection of mines, while the few acceptable concerns which it advocates have been bought at a lamentable sacrifice of capital. Mining enterprise is exceptional in its character, and also in its successes. All the telegrams and fluctuations in prices of shares that the ingenuity of jobbers and brokers can invent will not create a prosperous mine; it is the metallic ring of the crystallised rock that charms the practical discoverer of the hidden ores, while the "tip" of the interested dealer on 'Change is generally as illusory as the "wink" of a jockey on the winner of a Derby. Let the investor consult practical miners before parting with his money; then he may hope for success. There are as many sound progressive mines open for the selection of the public now as at any epoch within the range of the past 40 years; still, the market dealers are excluded. These concerns cannot be dealt in at every moment, and shares bought and sold in hundreds at every change in humour or caprice of jobbers and speculators; they must be bought up with caution and judgment, and unattended with the feverish excitement of market operations; and the investor will do well to act under the guidance of a practical consulting engineer before parting with his money. R. TREDINNICK,

32, Fleet-street, London, July 1. Consulting Mining Engineer.

NORTH CORNWALL.

SIR,—When will this poor unfortunate part of the county turn up anything in the way of mining or clay works, fire-bricks or peat works, or any other works of any value? Time after time some speculative parties come down from London, or elsewhere, and dabble in this or that: then it is a copper lode which is opened, and a few hundreds or thousands spent—sunk, but with no good result: then, again, it is a lead lode which draws the money from the pockets of other people. Now it is china-stone or clay, about which, some few years since, there was a great cry among the would-be local knowing ones. Now, again, it is brick-making and turf manufacturing which interested parties are very anxious should be tried with the money of those who have it to throw away. The great disadvantage the district labours under generally is the cost of carriage to ports of shipment, and unless a railway is made, as proposed, these disadvantages will, with others, prevent anything of importance being done here. As to brick-making, this is perfectly ridiculous, and so is the manufacture of peat, as there is not enough of really suitable raw material for either purpose conveniently situated for carriage to a market where there would be anthing like a demand. If ever there is a railway through this part of the county some mines and other works may be established with possibly a chance of success; but while matters are as they are, mining and other speculations will only result, I fear, as they have resulted in the numerous attempts made within the last 50 years. There is one mine in the neighbourhood of Camelford which, after a heavy outlay, warrants the confidence of investors in this kind of property, and that is Old Treburgett. A. B.

PROGRESSIVE MINES IN CARDIGANSHIRE.

SIR,—In answer to your correspondent Absalom Francis, I have to say as I am not a mining captain seeking a gratuitous advertisement I do not publish my name, I sent it to you as a guarantee of my respectability, and I presume you are satisfied, or you would not have inserted my letter. Your correspondent denounces my statements as false, but he does not contradict one word of them. It was far from my wish to commence a personal discussion in your columns, therefore I shall say no more, except to remark on Mr. Francis's extraordinary statement, that he has been connected, more or less, with nearly every mine in Cardiganshire during 34 years. As there are between 50 and 70 mines, your correspondents' employers can hardly have appreciated his value, when they would dispense with his services after so short an experience of them. A friend of mine has kindly undertaken to

nquire into the mines your correspondent has really had connection with, and the results of his valuable services to them, so that I shall be able to test the truth of the statement. In the meantime let me draw your correspondent's attention to an old saying—"A rolling stone gathers no moss." PLAIN MATTERS OF FACT.

MINING IN STAFFORDSHIRE—ECTON.

SIR,—We are extremely surprised to find that a correspondent in last week's Journal should make such a statement as regards the estate of Captain Blackett, R.N.; it was quite uncalled for, unfounded, and at the same time untrue. Your correspondent makes use of very bold language. One expression is that "an adventurer has come out of embryo." We are of opinion that the term may be more fitly applied to the writer, who, perhaps, may have been a visitor, but we much doubt his being a resident in this neighbourhood. Perhaps as the gentleman who communicated with you last week is a correspondent of the Journal he will be able to see that we have formed no bad idea as to who he is, when we ask why he did not subscribe himself a Mining Engineer, as (if we are right in our conjecture) we well know that he has professed himself to be. Can he honestly call himself such?

When people are disappointed in their plans and ideas they (at least a great many of them, and we think we may include your correspondent amongst the number) are apt, like famished men, never to refuse a bite at a crust. Disappointment very frequently causes vexation. When others obtain the prize for which they have striven so earnestly it often excites envy, and, as we think, this is what your correspondent is labouring under, we cannot but advise him for the future to take care how he makes use of false expressions. We think we have trespassed upon your space sufficiently this time, but if your correspondent desires our further opinion he has only to write through the Journal. RESIDENTS.

SOUTH TOLCARNE MINE, CAMBORNE.

SIR,—This mine, to which I now call attention, is divided into 6000 shares, and can be purchased under 1*l.* at this moment. The management is excellent, and the mine is very cheaply worked, and was started by the present company from a certain knowledge of the course of the lodes from South Condurrow Mine, situated on its eastern boundary, and immediately adjoining it. The fact of having cut the great tin lode of South Condurrow at once recommends the mine to the notice and favour of all practical men. The truth of South Tolcarne promising to become a very rich mine is now based on solid foundation. In a very few fathoms more sinking the various lodes now being opened are expected to return rich masses of ore. The mine is so well spoken of in the district that it needs no experienced investor to observe at a glance that few mines stand a better chance of becoming dividend properties than South Tolcarne. The point to which all attention is now directed is to the opening of the South Condurrow great tin lode. It is quite possible that this may prove worth from 35*l.* to 100*l.* or more, having been valued at the latter amount in certain parts in South Condurrow. When the price of tin was but 40*l.* per ton, this mine was left as a failure, and "knocked," but the rich discoveries in the latter adventure quickly attracted the attention of shareholders in South Condurrow to the apparently certain prospects of South Tolcarne, seeing that all the lodes of the former mine were running directly through it. The property is held on nominal lease, with no promotion money, and is one of the soundest, cheapest, and best conducted enterprise ever introduced on the market.

CONSTANT READER.

[For remainder of Original Correspondence see to-day's Journal.]

OLD MINERS' FRIENDLY SOCIETY.—The members of this old-established Friendly Society celebrated their sixty-ninth anniversary on Monday, at the Bedford Hotel, Tavistock. Notwithstanding the depressed state of mining during the past year, and that numbers of men who are the support of this and kindred institutions have left the neighbourhood, the society have experienced a most successful year, and have considerably increased their reserve fund. After the transaction of the general business the company enjoyed an excellent dinner, of which a goodly number partook. Mr. J. Pearse (surgeon) occupied the chair, and Capt. W. Clemo (Devon Great Consols) the vice-chair. Among those present were—Mr. W. C. Northey (surgeon), Messrs. C.V. Bridgman, H. Blatchford (Portreeve), J. J. Daw, T. W. Greenfield, Capts. J. Bray (Wheal Russell), W. Phillips (Bedford United), H. George and H. Rodda (Devon Great Consols), &c.

PERSEVERING MINER.—A man, unaided and alone, has been constantly employed for the last three years and over, driving a tunnel into a hill near Swansea, about 2¼ miles from Hamilton, White Pine, and has completed over 400 feet into the solid rock.

The Prize Essay—Practical Mining.

No. XI.

SECOND ESSAY—PART V.

ROLLS.

Many patents have been brought before the public for crushing ores, and the Cornish crusher has been remodelled and improved (?) from time to time, but I think among the many now in use it may still be considered the best crusher for simplicity, strength, durability, and effectiveness. Some have tried rubber buffers or springs for keeping the rolls together, the advantage of which is the resistance increases as the rolls open, and occupies less space, but in the method mostly in use—weighted levers—the load is constant, the amount of pressure being regulated by weighted boxes carried on the levers, and its action is all that can be desired, any unyielding substance happening to fall among the stuff, and carried unnoticed to the rolls, such as a steel gad, will pass through without fracture or injury to the rolls; the boxes only being weighted to overcome the material under operation will allow the rollers to slide between its guides, the unyielding stuff passing through; a certain amount of ore will pass through at the same time, and the same thing occurs also if the rolls are fed too fast, which has a tendency to choke and keep them apart; therefore, regularity of feed, attention to size of stuff, and a proper adjustment of the weight boxes must be observed to obtain the best results. There should be a series of rolls: the upper set crushing the larger stuff may be fluted, so as to get a firmer grip on the stuff. To produce good jigger work they should be 30 in. diameter by 18 in. face, and speed of periphery 50 ft. per minute, provided with revolving screens or sizing trommels, (say) 72 in. long by 24 in. diameter, and erected at an angle of 25° to that of the driving roller, working in water (say) at a depth of 2 in., which will effect a better separation, and prevent balling of the earthy matter; by using sizing trommels we send only such portions back to the crusher as cannot be jigged; this is not the case with the ordinary "fine" riddle and raff wheel. This raff wheel or elevator takes the stuff from the riddles, and lifts it again to the hopper, which may be large enough to contain 1 ton of ore, and is again passed through the rolls, and so on continuously until all is fine enough, or has passed through the riddle. By using a Blake's stone-breaker the fluted rolls may be dispensed with, and the greater proportion of this re-crushing will be avoided, and perhaps 50 per cent. more stuff got through; this is effected by using a small size machine lastly, with jaws moving only ⅛ in., and making 600 bites per minute.

Rolls have been manufactured of different materials, in order to obviate the necessity of frequent changing; they often become pitted, scored, and bulged, but the best material will be a hard, chilled, white iron mixture that I have seen turned out by Harvey and Co., which have an excessive amount of very even wear. Those shells, shoes, or castings, when keyed-on with lock-nut taper wedges, form a compact mass with the spindle or axis, and are readily and easily removed when required to be changed. Some of those machines are driven by band on the Continent, but the best method of driving is the mode universally employed in the West of England—strong spur gearing. Before passing the stuff to the crusher it may be raked over a series of screens or riddles under a stream of water, which will result in a saving of the fine stuff being caught under the riddles by elevators, or other apparatus, and so carried direct to the sizing trommels. The great point to be observed, especially in case of silver-lead ores, should be to granulate, and not pulverise the stuff. The rolls should be set for different sizes, and well screened between each crushing; in order that the fine may not again be subject to pressure, the more fine or slime produced the more difficult to dress, and greater the loss; even scum from the jigging machines when dressing rich ores will pay to collect; the very fine slimes and scum will contain a greater percentage of silver than the coarse ore, and may be accounted for thus—the richest ore is most easily pulverised, and is seldom purely chemically combined with the lead.

There are also the German crushers, results of which are given by Mr. J. Darlington in the annexed table:—

Diameter of rolls in inches.	Length of rolls in inches.	Number of revolutions of rolls per minute.	Speed on face of rolls per minute in feet.	Quantity of mineral reduced per hour. Tons.	Horse-power required.
38	10	10-20	90-180	5	5 -8
27	10	12-20	80-140	4	4 -5
21	10	15-20	80-110	3	3 -4
15	10	25-30	80-110	2	2½-3½
12	10	30	90	1½	2 -3
10	10	40	100	1	1 -2½

Rollers.

Name of Mine.	Diameter in inches.	Length in inches.	Revolutions per minute.	Crushing area per minute in square inches.	Total pressure on rolls.
Grassington Mines	27	12	5½	9503	91 cwts.
Mineral Engineers	24	24	8	4920	73½
Cwmystwith, No. 1	27	14	4	4743	78
Ditto, No. 2	27	14	4½	5841	85
Gogotuan	30	14	5½	6593	130
Cwm Erlan	27	14	7½	8402	293
Llsburne, No. 1	27	15	6	7632	180
Ditto, No. 2	27	15	7	7632	224
Derwent	27	14	7	7069	227
Gobleseye*	30	14	14	11 060	67
East Darren	30	15	6	8995	207
Cefn Cwm Brwyno	30	13	6	4 010	74
Llsburne, No. 3	27	15	6	6 432	169
Llandudno	15	15	15	2827½	61
Wheal Friendship	30	15	10	9670	225
Pontgibaud	25	12	12½	7363	225
Devon Great Consols	24	15	10	10 435	405
Fabrica la Constante, Spain	24	15	10	11 309	147
Ditto, No. 2	27	15	10	12 720	110
Ditto, No. 3	27	15	10	13 464	74
Ditto, No. 4	27	15	10	13 050	93

Sifter.

Diameter in inches.	Length in inches.	Number of holes. Sq. inches.	Revolutions per minute.	Diameter of raff wheel.	Horse-power.	Quantity crushed in 10 hours.	Cost of crushing per ton.
21	48	6¾	37	14 ft.	...	37 tons.	2½d.
24	42	9	48	10	6	50	2½d.
24	34	9	24	16	...	32	2½d.
24	36	9	24	16	...	35	2½d.
24	39	9	36	16	...	30	2½d.
24	32	12¾	30	16	...	26	2½d.
24	26	12¾	39	16	...	42	2½d.
24	26	12¾	39	16	...	42	2½d.
24	60	16	...	15	...	60	2½d.
24	16	16	45	16	...	25	2½d.
24	48	16	27½	14	...	25	2½d.
24	30	25	30	16	...	39	2½d.
24	36	36	60	15	13	42	2½d.
24	44	36	60	15	15	30	2½d.
24	64	64	21	15	...	20	2½d.
24	100	100	30	15	...	17	2½d.
24	100	100	38	16	15	65	2½d.
24	3·600	3·600	45	16	16	70	2½d.
24	3·600	3·600	45	(?)	...	80	1s. 2d.
24	59	3·600	45	(?)	...	13·20	1s. 2d.
24	59	3·600	45	(?)	...	13·20	1s. 2d.

* Goldscope has two sets of rolls, one fluted the other plain. † Two sifters, one 24 inches the other 22 inches in diameter. ‡ Jacob's ladder, 100 feet.

[This Table is extracted from Hunt's edition of Ure's Dictionary.]

Also numerous American specifications, some of which, no doubt, give good results, but none have been introduced in England of any merit but Girdwood's, which answers well at Bromfloyd, and consists of a pair of 30-in. rolls, is designed to grind and crush at the same time by a reciprocating and rotating motion, the result of which is reported to be 50 per cent. more work done with the same power. It can be regulated to crush any fineness—the reciprocating action causes the rolls to wear even, and without grooves, a desideratum in crushing by rolls, and will reduce from 12 to 15 tons of raggings in 12 hours with 5-horse power.

PULVERISERS.

There appears to be some necessity for a machine to pulverise and grind the roughs, or tin rows, of which there are vast accumulations at many of our mines, and the ingenuity of mining engineers and tin-dressers have been taxed for some simple and inexpensive method to treat them. There are numerous machines employed for pulverising and grinding, all of which may be useful under different conditions. The most successful machine now before the public is, perhaps, Dingey's patent pulveriser. This machine consists of a cast-iron circular dish, 6 ft. in diameter, fitted with grate-plates around its sides 15 in. by 5 in.; in this pan revolves four cast-iron runners, or plates, 2 ft. in diameter, weighing 1½ cwt. each, and making 240 revolutions per minute, whilst the pan revolves slowly against the runners, thereby changing their relative positions, and presenting a different surface of the pan to the shoes at each revolution, which remedies the defect, as witnessed in most machines—the excessive wear and tear, scoring, and grooving. The machine is fed from the centre, and the stuff is carried down to the grinding surfaces through grooves cast in the discs. The wear of discs and plates is about one-half of that of stamps required to do the same amount of work. The power is derived by a belt from the engine, and the discs worked by spur gear. It will grind about 10 tons of roughs in 10 hours, consuming 1½ cwt. of coal per ton of stuff produced. Mr. James Harvey, of Helston, Cornwall, has a pulveriser which operates by bruising, and consists of two or more discs, or shoes, worked by alternate reciprocating motion on an iron bed. Those shoes, or bruisers, have curved faces, and the crank motion draws the stuff under them at each stroke, and reduces it to any degree of fineness. Power may be acquired by a water-wheel 10 ft. in diameter, 2 ft. breast, and will reduce 12 tons of burnt leavings in 24 hours sufficiently fine to complete the dressing. Capt. J. Boyn's (of Botallack) pulveriser consists of a cast-iron muller-trough, containing iron, steel, or granite slabs, which have a to and fro motion given them by the crank and sweep-rod. They are also carried from side to side, and rise and fall, at which time the water carries the roughs under the slabs, which are pulverised to any fineness, and run off at the other end. Carr's patent disintegrator consists of four cylindrical iron rings, or cages, arranged within each other, and revolving on two shafts, one solid and the other hollow. Those rings, or discs, are joined by bars parallel with the axis, with open spaces between them; the first and third cages are caused to rotate to the right, and the second and fourth to the left, with great rapidity, by means of an open and cross belt. The machine is fed from the centre, and the stuff is thrown by centrifugal force from the first to the second cage, which is revolving in a contrary direction, from thence to the third, and so on until fine enough to pass through, when it gives off the fine powder in a radiating shower from the periphery of the outer cage. Those cages travel at different velocities, from 40 ft. to 60 ft. per second, and so keep up a rapid and continuous agitation, striking an incalculable number of blows per minute, and will disintegrate 50 to 100 tons per day, according to the nature and size of material under treatment. A very friable quartz may be treated with this machine, and, perhaps, would be a good puddler, but cannot say that it has come largely into use. Whelpy and Storer, of America, tried a centrifugal pulveriser, which consisted of a drum 42 in. in diameter and 18 in. in breadth, containing an air-wheel revolving rapidly, which produces a rotary current, and the stuff is reduced by the action of the particles against themselves. It is provided with a fan, which drains out the dust as soon as made, and deposited in a series of chambers. This machine gives about 100 lbs. of quartz powder per hour per 1-horse power. This is forwarding the principle of dry crushing, which ultimately may be brought to some perfection. Lundgren's American pulverising barrels consist of a wrought-iron cylinder 3 ft. long and 5 ft. diameter, lined with hard cast-iron, and contain about 2000 lbs. of chilled iron bullets 3 in. in diameter, the charge being about 600 lbs. to 700 lbs. To reduce this charge to an impalpable powder will require the machine to be run about 70 minutes at a speed of 26 revolutions per minute. I have selected but a few of the many patents for crushing, grinding, and pulverising; some have had a short life at the gold fields for reducing quartz, but grinders, mullers, and pulverisers are not to be recommended for crushing gold quartz, as they triturate, cut, and wear away the particles of gold, whereas stamping flattens only. We have also the edge or Chilian mill; the horizontal mill, and the Arrastre, in some cases, may be useful for reducing minerals to an impalpable powder, but must be used on a small scale, and in countries where labour is cheap and water-power plentiful.

THE SOUTH MIDLAND INSTITUTE OF ENGINEERS.

The annual meeting of the South Midland Institute of Mining, Civil, and Mechanical Engineers was held at the Institute, Wolverhampton, on Monday. Mr. E. JONES (President) was in the chair, and there were likewise present Messrs. T. Rose, H. Beckett, F.G.S., W. Blakemore, D. Bromley, W. Ness, W. Glennie, W. Davies, A. Bowkley, S. Fenn, T. Parton, G. L. Tatlow, J. Eglinton, J. Ferriday, W. H. Gibberoy, S. Mansell, A. Croxall, D. Knowles, E. Phillips, T. Price, D. W. Lees, secretary, and others. Mr. Noah Parkes, coalmaster, Oldbury; Mr. T. Parton, F.G.S., West Bromwich, Mr. R. Haines, secretary of the North Staffordshire Mining Institute, Longton; and Mr. W. N. Rose, coalmaster, Moxley, were elected unanimously as ordinary members.

The SECRETARY (Mr. W. D. Lees) read the report of the council which showed that during the past year the Institute has been gradually resuming that condition of vigour which it had at its commencement, and that now, in the belief of the Council, there is before it a long and prosperous future. One honorary and 18 ordinary members had been added to the *role*, which now contains 15 honorary and 117 ordinary members, a total of 132. The papers which had been read and discussed had been eminently calculated to furnish the members with that theoretical and practical information which was so much desired by men who were engaged in occupations in which theory and practice had to be continually combined. The complete "Transactions" for the past two years would soon be in the hands of the members, and their character would demonstrate the correctness of the views which the Council had just expressed. The balance sheet, which had been examined by Mr. James T. Tatlow and Mr. W. Underwood, as the auditors, showed a favourable balance of 21*l.* 5*s.* 2*d.*, in addition to arrears of subscriptions still due.

The result of the ballot for officers for the year ensuing was declared by Messrs. Samuel Mansell and W. H. Gibberoy, the scrutineers. For the offices named:—President Mr. E. Jones; Vice-Presidents, Messrs. T. Rose, Bromley, and Homer; and Council, Messrs. Watkins, Bowkley, Davies, Claridge, Underwood, Noah Walker, Laxton, Blakemore, Rendall, Fenn, and Gething.

THE NEW SINKING AT BRORA, SUTHERLANDSHIRE.

The PRESIDENT had had brought to the meeting highly interesting specimens of the result of the sinkings which he had recommended in an altogether virgin tract of the estate of the Duke of Sutherland, at Brora, in Sutherlandshire. In opposition to much advice of a contrary nature, the Duke, acting upon the President's recommendation, instructed the sinkings to be made, and at a depth of 80 yards the sinkers came upon 3 ft. 8 in. of coal, and 7 ft. of oil shale. These deposits were succeeded by 2 ft. of fire-clay, 6 in. of coal, 1 ft. of fire-clay, 7 in. of coal, 16 in. of fire-clay, and 16 in. of excellent coal. After these oil shale come again. What more there was below remained yet to be seen. The sinkings had been conducted to a depth of 90 yards, and they were all through, not the carboniferous, but the oolite formation; this made them so interesting in a scientific aspect, for excepting a tract of a few acres in Yorkshire, no similar oolitic deposits were to be found throughout Europe. Similar strata existed in six or seven distinct patches in Australia, and in New Zealand, and in Japan, but excepting the, perhaps, bizarres in the northern county he had mentioned, where the deposits were not of much worth, the Brora sinkings were altogether unique throughout that division of the globe to which Great Britain belonged. In a commercial and mercantile aspect the sinkings were of great significance. Their noble owner—who was one of the most enterprising men in the kingdom, and was bent upon thoroughly developing his estates—received the discovery with great satisfaction, seeing in it the means of utilising other property in Sutherlandshire, of which he was the owner, so as at once to provide profitable employment for the people there, and at the same time add considerably to the existing sources of national wealth (Applause). As well they might, the inhabitants of Sutherlandshire were greatly rejoiced at the discovery, for it was made at a point 350 miles away from any previously known coal field. It would supply fuel to Inverness and Wick and Thurso, and he quite expected that it would be exported to Norway.

Mr. NESS said he was very much surprised indeed at the specimens; they had upset all his previous notions of what had been found at Brora. There was no doubt whatever that they belonged to the real coals. All opinions that members may have formed as to lignites must now be at once expelled. The shale would, he thought, produce from 35 to 40 gallons per ton of heavy oil, fit for lubricating purposes, and yielding a good deal of paraffin; its gravity would, he thought, be pretty nearly 900. It would be most interesting if the deposits could be seen at once, where they could be judged of in connection with the surrounding strata.

The PRESIDENT assured Mr. Ness that there was no doubt whatever that the specimens had been found in the oolitic formation. In fact, he had brought from Brora many beautiful belemnites, which were being quarried in immense quantities over the coal and the shale, intending to bring them to the meeting, but, by accident, they had been left in Shropshire. It was important that the Institute should remember that these specimens had no reference whatever to the result of old sinkings near Dunrobin Castle, of which so much had been said. Those were, in his view, the result of glacial action, and were in the conglomerate, whilst those at Brora, six miles away, were in the oolite. The two were altogether unconformable.

Mr. ROSE, Mr. Blakemore (President of the Dudley Institute), Mr. Glennie, and others, spoke of the great importance of the Brora sinkings, both scientifically and commercially, and expressed a desire that the Institute should own the specimens which the President had shown.

The President gave the specimens, and promised to supplement the gift with the belemnites of which he had spoken.

The gift was accepted; and the specimens will be placed in suitable cases made for their reception.

Mr. BECKETT announced that he would present to the Institute the valuable cabinet of fossils and mineral specimens which has for some time past graced his office, and with which leading geologists and mining engineers are familiar. This very valuable presentation excited the warmest thanks of the members, for the cabinet itself, independently of the rarity of some of the specimens, is a costly gift.

Arrangements were made for excursions during the year, and when the President, Mr. Rose, Mr. Bromley, and Mr. Blakemore had acknowledged their election, and had promised continued practical interest in the welfare of the Institute, the President, on the motion of Mr. Blakemore, was enthusiastically thanked for his services in the year past, and the members then adjourned.

The annual dinner came off at the Star and Garter Hotel, when Mr. E. Jones was the president, and Mr. T. Rose was the vice-president. The gentlemen whose names have been already given were there, and they were joined by Mr. B. P. Walker, Mr. Farnworth, and others.

During the proceedings, the President gave a cordial invitation to the members to visit Brora, where he was sure they would receive a hearty welcome from the Duke and Duchess of Sutherland, who by the time an excursion could be arranged would have repaired to Dunrobin Castle for the season. He had had to do with men of science and men of wealth, but never had he met with a man who was more thoroughly in earnest—one who more anxiously desired that all his possessions should contribute the utmost possible good to his fellows of every grade, or one who was more thoroughly a gentleman in everything that he did—(applause.) This he said after a knowledge of the Duke of Sutherland extending from his Grace's early years. His Grace, he was sure, would be glad to receive the assistance of the Institute in developing the splendid mineral property which he now found that he possessed in Scotland. The sinkings were near to the sea, and also to the Duke's private railway by which access was had to the whole railway system of the kingdom, and he (the President) should not be surprised if by-and-bye there might be produced from the oil and peat of Sutherlandshire compressed fuel that might be sold at 6*s.* a ton—(applause). In that event he need not say how great material good would in that respect alone result from the Brora sinkings. The President subsequently spoke of the confirmation of his previously expressed views relative to the very little undeveloped coal that remained in Shropshire and upon its borders, which recent sinkings at Child's Ercal and at the Preston Hospital Estate had demonstrated; but he congratulated Staffordshire upon the large quantity of coal that, it was his opinion, remained yet to be found underneath the Permians on the Cannock Chase boundary of Staffordshire.

The speeches generally displayed the existence of a warm cordiality of sentiment between the Dudley and South Midland Institutes; and testified by reference to the Sandwell sinkings, the Mines Drainage Bill, and the amended Coal Mines Regulation Act, to the benefits which were likely to accrue from the existence of those societies.

An especial compliment was passed to Mr. Walter Ness, who has been appointed by the Indian Government their mining engineer, to superintend the working of the Wurdah Valley coal field. Mr. Ness is the gentleman whose name is so well-known in connection with the heroic efforts to reach the entombed miners in the Pelsall Hall Colliery. Mr. Ness is an engineer of great skill in the practice of coal mining, is an able metallurgist and chemist. He has had experience in his profession in Scotland as well as in England, and in both places has been successful in training students in all these branches of science. He leaves a lucrative appointment as mining engineer and colliery manager at Pelsall, and takes with him, as an assistant, Mr. Gardiner, of Glasgow. The Institute accepted the invitation to Brora, although it is 600 miles miles away; and the final arrangements will be made at the next monthly meeting.

CHALK AND COAL.—At the last meeting of the scientific committee of the Royal Horticultural Society, Dr. Gilbert made some remarks on the proposed use of chalk mixed with coal in furnaces. He said it was quite certain that chalk could not supply any heat; on the contrary, its conversion into lime involved a considerable loss of heat in order to effect the change. What the chalk did was to absorb the heat and radiate it out again; and pieces of broken fire-brick would probably answer the purpose equally well. The mixture of these substances simply, so to speak, diluted the coal.

Meetings of Public Companies.

ST. JOHN DEL REY MINING COMPANY.

The forty-third annual meeting of shareholders was held at the London Tavern, on Monday,

Mr. JOHN HOCKIN (managing director) in the chair.

The notice convening the meeting was read; the report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said—I am happy to say that we meet you this year with much more comfortable feelings than at this time last year. Then we had the shafts half full of water, and the sinking at the Sandstill. Now we have not only satisfactorily solved the water question, but we have during the last eight months removed three-fifths of the rock that stood between us and the object of our enterprise—the large deposit of auriferous lode existing now only about 50 fms. below where our men were at work on May 16. It is true we have to go below that level some other 10 fms., but when we are actually on a level with, or possibly touching, the old familiar gold-bearing stone we shall watch the progress downwards from that point with increased interest, and free from that anxiety which has weighed upon us now for a long period of time. As regards the progress the miners are now making and are likely to make in sinking, now the shafts are so much deeper, it has been thought by some persons that the increasing depth must present greater difficulties. I referred to the subject, you may remember, this time last year, and then said that we did not apprehend any delay on account of increased depth, and that we trusted when we could resume sinking we should be able to sink the 50 fms. then to be sunk at the same rate as the 126 fms. already sunk; the facts up to the latest advices fully bear out this anticipation. The first 126 fms., which were sunk uninterruptedly without delay from water, were sunk at the average rate of 34 fms. a month, and the sinking for the eight months since the water has been pumped out has been at the rate of 36 fms. a month, or two-tenths of a fathom per month faster than when the shafts were less deep. The present state of the shafts, I am glad to say, is all that can be desired; they are both in solid ground, the rock hard and compact. You will remember that shortly after sinking was resumed in August last, after passing the broken ground that let in the water the previous year, a very distinct crack was cut into on the north side of the shaft running in the direction N.E. and S.W., that is nearly parallel with the direction of the south wall of the Cachoeira Mine; this crack continued down some 27 fms., when it disappeard; surveys have been made of it, and it has been entered in the N.E. direction some 50 ft., and carefully examined on several occasions from February to May. From these examinations the general opinion is that the crack is formed by a large mass having parted from the parent rock at some former period, and moved some 2 or 3 ft. towards the Cachoeira excavation, where it has been brought up by some resisting body, possibly a pillar of masonry, and being now firmly seated on solid rock is not likely to move, or cause inconvenience to the shaft either above or below; this opinion is formed after the character and condition of the rock had been carefully watched and examined all the way down, and now they have got below it, such examinations extending over a period of many months. As regards the chasm left by the falling in of the mine surface, little or no change has taken place in its form, though we have now passed through an entire wet season, and one of unusual severity. A little earth fell from the north side, but on the south side no enlargement took place. The surface works and machinery for the new working are now, I have much satisfaction in stating, all but complete. We have two powerful pumping-wheels, and the necessary appliances for driving them, wholly finished. The larger of these has hitherto even in the wet season raised with ease both the water accumulated in the old mines and the ordinary feeders. The smaller wheel is, therefore, in reserve for any contingency that may arise. The hauling wheel is an unusually large and powerful machine—48½ ft. in diameter, with a breast 9 ft. wide, divided into two sets of buckets; this is also complete in all its parts, and performs the duties for which it was designed admirably. All the new aquaducts for distributing the water to the several wheels are likewise complete, and the mineral tramway has the rails laid on it, and is ready for the traffic. I have within the last few days seen a gentleman just returned from Brazil, the manager of one of the neighbouring mines, who had immediately before leaving spent some days at Morro Velho, and examined all the new machinery and the shafts. He speaks in the highest terms of praise of the way in which the whole has been put out of hand by mechanics and miners. As regards the cost of sinking the shafts, I would beg to ask your attention for a moment to what is stated in the report on that subject. The total cost of sinking 313 fms. in both shafts, including 22 fms. of cross-cuts, and the necessary pumps and timberwork in the shafts, hauling and pumping water and rock, has been 37,126*l.*=118*l.* 8s. 5d. for each fathom sunk. The original estimate was 112*l.* 3s. 2d. per fathom: the actual cost, therefore, has been in excess of the estimate 6*l.* 5s. 2d. a fathom; this excess, if continued until the shafts are complete, will amount in the aggregate to a little over 2000*l.*, which we think quite inappreciable considering the magnitude of the work, the uncertainty of such operations, and the nine months delay in getting out the water from the old excavation. In this I trust the meeting will concur, and agree with us in thinking highly creditable alike to those who formed the estimates and those who have planned and executed the details of the work. The excess over the estimates for the surface works, you will have seen, arises mainly from causes wholly unforeseen when the estimates were made. The falling in of the mine surface so deranged the plans that a great deal of the work had to be wholly reconstructed. The produce collected during the year from the surface at Morro Velho has netted, you will see, 5649*l.* We could hardly have expected to have recovered so much from this source after all mining operations had ceased, and it shows how carefully every particle of the stone or sand from which the precious metal could be extracted was availed of. On the mine surface falling in the great and pressing difficulty became, as you are aware, the finding occupation for the labourers; some of the native *employés* could be dispensed with, as likely to return when required, but the best interests of the company demanded that the large body of the labourers should be kept together. You are aware of the active and judicious steps taken by the superintendent to effect this object, and I would beg to call attention to the fact that, whilst during the 12 months of last year the Morro Velho estate mining account—No. 4 in the report—showed a loss of 8836*l.*, though the gold recovered realised 49,800*l.*, the same account this year only shows a loss of 7354*l.*, though the gold recovered only realised 5649*l.*, the cost you will see, by account No. 6, the last in the report, having been reduced from 58,688*l.* last year to 13,004*l.* this year. In regard to Fernam Paes estate I regret to have little encouraging to say. The working of the Gaia lode has of late been unprofitable, from the lode having become very poor, though it had slightly improved by the last advices. The Gabiroba lode would require considerable outlay before it could be proved, and we have not, therefore, thought it expedient to do anything there just at the present moment. At the Matto Virgem lode a little has been done, at a trifling outlay, to prove the lode, but as yet the mineral quarried has proved of inferior quality. As regards finance, as we have a special meeting to discuss that subject, I will not detain you with any remarks thereon just now. I will now move that the report and balance-sheet be received and adopted.

Mr. SCHOFIELD enquired if there was any objection to mention the name of the gentleman referred to in the Chairman's speech as having just returned from Brazil?——The CHAIRMAN said none whatever. He referred to Mr. Pearson Morrison, of the Anglo-Brazilian Company.

Mr. SCHOFIELD said that source had been generally hostile to this company.

Mr. SPENCER HERAPATH enquired the probable time it would now take to reach the lode in the bottom of the mine?——The CHAIRMAN said it was expected by about October the point would be reached at which the lode could be attacked.

Mr. SCHOFIELD asked what distance would have to be driven from the bottom of the shaft to reach the lode?——The CHAIRMAN said if their calculations were correct the A shaft would come down by the side of the lode, so that there would be no distance to drive.

Sir JOHN SWINBURNE suggested that the term "oitavas" should be abandoned in the reports, and "ounces" substituted.

The CHAIRMAN saw no objection to insert in the next report the word "ounces" as well as "oitavas," but the latter must be retained, as the accounts in Brazil were kept in oitavas.

Mr. SCHOFIELD asked if there was any doubt about the lode at the bottom of the mine being as rich as it had hitherto been?——The CHAIRMAN said the directors believed the lode would be just as good as ever it had been.

Mr. SPENCER HERAPATH said that dispelled the idle rumour that the mine had ceased to work because the lode was exhausted.

The CHAIRMAN said such a rumour was utterly without foundation. The lode at the bottom was as productive as it had been, and nobody on the mine had any doubt whatever that it was still of value.

Mr. SCHOFIELD said the profit for the last month before the accident was 8000*l.*

The report and balance sheet was received and adopted.

Mr. F. W. Hamsted, the retiring director, was unanimously re-elected, and Mr. Spencer Herapath was re-elected auditor.

Sir JOHN SWINBURNE had much pleasure in proposing the election of Mr. Tendron as an auditor of the company. Mr. Tendron had been a shareholder for many years, and he was not only well acquainted with the accounts of the company, but he had been able to give some very valuable suggestions as to the mode of keeping them, so that any item could be easily pointed out, and undue expenditure checked.

Mr. LATCHMORE begged to second the proposition. He had known Mr. Tendron for many years as a perfectly competent and efficient accountant.

The resolution was put and carried unanimously.

Mr. TENDRON having thanked the shareholders for their confidence in electing him to the important position of auditor, took occasion to remark upon the surprising unanimity which had characterised these meetings, although for five or six years the shareholders had met without a dividend. No doubt, this special feature arose from the feeling in the minds of shareholders that the best was being done both at home and at the mine for the benefit of the company, and from the full confidence that when the remaining 19 fms. shall have been sunk the fact would be demonstrated that the mine had not been set on fire because the lode was exhausted. Nothing could be so absurd. He hoped next year to be able to state that he had audited accounts of a much more satisfactory character as to results than those now submitted. (Hear, hear.) He then proposed that the best thanks of the shareholders be given to the directors.——Mr. TOMPSON seconded the proposition, which was put and carried unanimously.

The CHAIRMAN thanked the meeting for their continued confidence. The directors had hitherto done all they possibly could, and would continue to use every exertion in the same direction.

An extraordinary general meeting was then held for the purpose of considering and determining upon the expediency of increasing the company's capital by the issue of new stock, and the extent to which such increase shall be effected, and the terms and mode of issuing the same, and of passing resolutions for effecting the above purpose,

Mr. JOHN HOCKIN in the chair.

The CHAIRMAN said he had resolutions drawn up by the solicitors of the company, and settled by counsel, the purport of which was that the stock of the company be increased by 33,000*l.*, which when paid up would rank in every respect the same as the old stock, provision being made that the total amount was to be paid by instalments between the present time and the end of the year. The resolutions were as follows:—

1.—That the 5*l.* per share, mentioned in the ninth clause of the company's regulations, having been paid, and all the existing share capital having been converted into stock, the said capital, now consisting of 220,000*l.* stock, may be increased in future by the issue of new stock in the same manner as it might be, or have been, increased by the issue of new shares, and the same capital shall be, and is hereby, increased accordingly by the creation of the further sum of 33,000*l.* stock, to be considered as part of the original capital of the company, and to be issued at par, and to be first allotted to the existing stockholders in proportion of the amount of original stock held by them, or as near thereto as circumstances will admit.

2.—That such newly-created stock shall be paid upon by the respective allottees thereof in proportion to the respective amounts allotted to, or held by, them as follows:—One-fifth of the amount thereof on the day of allotment. Two further fifths thereof on the expiration of two calendar months from, and next after, the day of allotment, and the remaining two-fifths thereof on the expiration of four calendar months from, and next after, the day of allotment.

3.—In the event of any stockholder to whom any part of such newly-created stock shall be allotted not accepting the same, or accepting only a part thereof, by writing under his hand within 14 days after he shall have received notice of the allotment thereof the board shall be at liberty, at their discretion, either to allot the stock not accepted by such stockholder, or any part thereof to, or among, any other stockholder or stockholders who shall be willing to accept the same, or to sell the same, or any part thereof, for the benefit of the company, and apply the proceeds thereof accordingly.

4.—In the event of any stockholder, to and by whom any part of such newly-created stock shall be allotted and accepted, omitting to pay any instalment thereof at the time, by the second of these resolutions appointed for payment thereof, such stock and all moneys (if any) previously paid by him on account thereof may be forfeited to the company, and the board shall be at liberty at their discretion either to re-allot the stock so forfeited, or any part thereof, to or among any other stockholder or stockholders who shall be willing to accept the same, or to sell the same, or any part thereof for the benefit of the company, and apply the proceeds accordingly.

5.—That the several holders of such newly-created stock may transfer their respective interests therein, or any part of such interest, in the same manner and subject to the same regulations as and subject to which any existing stock in the company may now be transferred, and shall also be entitled and subject respectively and according to the respective amounts of their holdings in such newly-created stock, and by virtue thereof to each and the same benefits, privileges, and advantages respectively for the purpose of voting at meeting, participation in dividends, and other purposes, and to such and the same liabilities as and to which they would be entitled and subject respectively by virtue of the same respective holdings if the newly-created stock so held by them respectively were original or existing stock of like respective amount, and instead of being stock only newly created, as aforesaid (saving always the liability imposed by the 2nd and 4th of these resolutions).

6.—That the foregoing resolutions shall from part of the company's regulations, and that such regulations shall be read subject thereto, and shall be and hereby are altered and varied accordingly.

A SHAREHOLDER asked what proportion of the 33,000*l.* was likely to be used before dividends were paid?——The CHAIRMAN said that if all things went on well they would reach the lode by about October; they had, therefore, six months' working expenses to provide, which, for the last 12 months, had been at the rate of 2000*l.* per month. They had in hand in London about 3000*l.* after paying all their debts, and there was a loan of about 2000*l.* in Brazil. In reply to further questions, he stated that all the surface works were now complete, and large quantities of stone could be reduced as soon as it could be obtained. He was not prepared to say how long it would take to open out on the vein to enable them to cover the expenses. It would take some time, but how long he was not prepared to say. The contracts with the Brazilian Government were made from month to month. The Brazilian Government had great interest in completing this road, and the President had promised to do all he could with the Legislature. They hoped to get the road finished before the men were wanted for the mines, and they could always allow a sufficient number of men so as to finish the road before withdrawing them altogether. He then proposed the resolution as read.

Mr. SPENCER HERAPATH seconded the proposition, which was put and carried unanimously.

Sir JOHN SWINBURNE proposed that the best thanks of the company be tendered to Mr. Gordon (the superintendent) and the officers of the company at Morro Velho, for their successful exertions during a most difficult period.

Mr. SPENCER HERAPATH had much pleasure in seconding the proposition, for Mr. Gordon had displayed a wonderful amount of avidity and perseverance.

The CHAIRMAN, in putting the proposition, stated that the directors quite agreed with everything that had been said concerning Mr. Gordon and the staff at the mine. If the shareholders only knew what extraordinary exertions had been made to keep the establishment together, and what other difficulties they had to encounter, they would feel they could not say too much in favour of the staff at Morro Velho, for the zeal and efficiency with which they had carried on the works of the company.——The resolution was put and carried unanimously.

A vote of thanks to the Chairman terminated the proceedings.

By advices received from the mines on July 1 the sinking in the shafts for May was as follows:—

		Total depth.
A shaft was sunk	4 fms. 4 ft. 8 in.	161 fms. 5 ft. 6 in.
B shaft was sunk	4 fms. 5 ft. 7 in.	161 fms. 0 ft. 5 in.
Total	9 fms. 4 ft. 3 in.	

The rock in the bottom of both shafts firm and compact.

WEST CHIVERTON MINING COMPANY.

A meeting of adventurers was held at the mine on Friday, Mr. GLUBB, of Liskeard, in the chair. The Chairman read the accounts from Feb. 1 to April 26. The labour cost for the 12 weeks amounted to 4794*l.*; merchants' bills, 1338*l.*; coal bill, 1461*l.*; doctors' fees, 33*l.*; dues, 515*l.*; disbursements, 211*l.* 19s.—making a total of 8385*l.* On the credit side there were 625 tons of lead sold for 8212*l.*, and blende 491*l.*, weight over computation, 33*l.*: total, 8736. Income tax allowed on dues 22*l.*, allowed by Mr. Peter, half of way rate, 3*l.* 7s. 10d. After bringing forward the balance at last account of 8228*l.*, there was now a balance in favour of the adventurers 8635*l.* In the account of assets and liabilities there was shown to be due to merchants 1583*l.*; surgeon of the mine, 33*l.*; lords' dues, 584*l.* On the other hand there was a balance at the bankers' 834*l.*, ore bills not received 7882*l.*, and other minor items. The profit shown on the 12 weeks' working was 407*l.* only.

Mr. CLOGG, the purser, explained that the reason why so little profit was shown was because they could not find a market for their blende this quarter. Last quarter this formed a considerable item in their credits. They had then sold 1200*l.*, but such was the state of the market now that they could not get a bid for it. During the quarter they had sold one parcel for 2*l.* 12s. 6d., which three months before they got 5*l.* for. They sold another parcel of 85 tons for 3*l.* a ton, which made 4*l.* before. Since that they had offered another sample for sale by ticketing, but they could not get a single bid. This made a difference of 600*l.* in their estimates. They had the blende by them, and they were in hopes that the market would again improve, so that they should be able to turn it into cash. There was a difference also in the price of the lead ores of 17s. a ton, and that made a difference to them of 250*l.* The report of the agents was about the same as usual. They expected to be able to keep up the returns of ore during the next quarter.

In reply to Mr. Smith, Captain JULEFF said the 140, at Hawkin's shaft, was turning out as well as the 130, and their prospects were quite as good now as they were three months ago. They had raised about the same quantity of lead and blende as the previous quarter. They could sell 1000 tons of blende now, but not all of the best quality.——Mr. CLOGG, being asked his opinion, said he was always in favour of a dividend when they could fairly pay it, but in this case, since the last meeting, through the alteration to the four-weeks month, they had had four pays, so that their bank account showed one month's labour cost not included in the cost-book, and seeing they had not sufficient to pay a dividend of even less than the last, it would assist them in the future if they were to sacrifice a dividend and charge up the month's cost actually paid. They had four months' cost against six months' ore.

Mr. SMITH—But you have got a reserve fund of 8000*l.* That might equalise the dividend. It was to be hoped the blende might be sold by the next quarter, and so equalise the returns again. They had been unfortunate in not selling the blende, but next quarter they might be more fortunate. He knew a dividend was expected, as it had been stated in the London mining papers that West Chiverton was going to pay a dividend of 7s. 6d. per share.

Mr. DABB: It was evidently not authorised.——Mr. V. PEARCE: The 8000*l.* is not in cash, much of it not even received.——Mr. SMITH: But it is really an asset. It will come some day.——Mr. PEARCE: But the cost is going on at the same time.——Mr. SMITH: And we are getting the returns at the same time.——In reply to Mr. Smith, the CHAIRMAN said a 5s. dividend would absorb 750*l.*

Mr. SMITH: They would have been able very easily to have paid a 5s. dividend if they had sold the blende, and he thought it would be more satisfactory if some dividend were paid, and, if he were not out of order, he would propose that a dividend of 5s. per share be declared. That would be calling on the balance for 302*l.* only.

In reply to Mr. Dabb, the CHAIRMAN stated that 4000*l.* worth of lead had been sold the previous day.

Mr. DABB: That never ought to have been credited by right.——Mr. SMITH said the same thing took place at the last meeting, and it seemed to have been the practice.

Capt. JULEFF: Nearly all the mines in the county do the same.

Mr. SMITH said the labour cost on the ore was paid for long ago. He begged to propose that a dividend of 5s. per share be declared.——Mr. FARLEY seconded.

Mr. R. MICHELL said other mines were suffering in the same way in reference to the sale of blende. To the great surprise of some, they did not get one-half the price for it.——The motion was put to the meeting and carried, and the accounts were passed and allowed at the same time.

The CHAIRMAN said there was a special resolution passed at the last meeting to the effect that, inasmuch as the cost of working the mine had seriously increased by reason of the depth of the mine, the enormous price of coals and materials, an application should be made to the lords for a reduction of the dues from 1-15th to 1-20th. In consequence of this he had written to Mr. Downing, the agent of the lords of 10-20ths of the land, but he had since received a reply stating that the lords did not see fit to grant the application. Mr. Peter had not refused, but had the matter under consideration. He had heard from another source that Mr. Downing's expression was, "What right have they for a reduction of dues as long as they are paying dividends?" He (Mr. Glubb) thought that, considering the enormous disadvantages that all mines were labouring under, they had a claim upon the lords, and more especially had West Chiverton a claim for consideration under present circumstances, and paying such high dues.

A conversation ensued with regard to the renewal of the lease, when the following resolution was agreed upon:—That the committee charged with the conduct of the matter, with the agents of the mine, be requested to seek a personal interview with the lords and their solicitors and agents, with the view of expediting some settlement of the question, and that the name of Mr. Edward Michell be added to such committee. A vote of thanks to the Chairman brought the proceeding to a close.

ELDORADO GOLD MINING COMPANY.

The second annual general meeting of shareholders was held at the company's offices, West Strand, on Monday,

Mr. HORATIO L. MICHOLLS in the chair.

Mr. TRAFALGAR BRATTLE (the secretary) read the notice convening the meeting, which stated that it was called to approve of the dividends declared by the directors since the last general meeting of shareholders, and to declare a further dividend; to receive the reports and balance-sheet for the year ending May 31; and to appoint auditors for the ensuing year. The notice also convened a special meeting for considering the amendment of the 29th clause of the Articles of Association.

The CHAIRMAN said that as the information necessary to enable them to close the report had only been received by the directors on the previous Friday, the shareholders had, perhaps, had no opportunity of reading it, so that it had better be read by their secretary.

The report stated that the directors feel that they have every reason to be satisfied with the year's proceedings, and that the results obtained fairly carry out all that was said at the first general meeting of the company. Soon after taking over the mine adverse reports were received, and the then agent, Capt. Hattie, sent in his resignation. The directors immediately secured the services of a first-rate mining captain, and sent him out. The result of his management and his report lead them to hope that their course of action will meet with the approval of the shareholders.

Mr. Sprague, the present mine captain, writes under date the 6th inst.:—"The Eldorado Gold Company's Mines were discovered about eleven years ago, and consist of 41 mining areas. Operations during the past year have been confined principally to the Plough vein; 2011 tons of quartz have been raised, producing 2648 ozs. 17 dwts. 1 gr. of retorted gold; part of this has been shipped to England, and the remainder sold in Halifax. This compares favourably with the returns for the preceding year—viz., 1786 tons of quartz raised, yielding 1289 ozs. 16 dwts. of gold, or 14 dwts. 10 grs. per ton, as against 1 oz. 6 dwts. 8 grs. per ton for the past year. This visible improvement began in May last year, which month gave 170 tons quartz, and 1 oz. 11 dwts. 5 grs. of gold to the ton. The sump-shaft has been deepened 33 ft., and is now 130 ft. below the surface. The length of workings on the Plough vein is near 210 feet. Generally there is not much system employed in working the Nova Scotia Mines; parts of the veins only are extracted, which appear most productive, leaving the rest. I found by a series of experiments made during the past year, that it is profitable to send most of the rock enclosing the veins of quartz to the stamps, thus giving a profitable piece of ground up to the west boundary line, and I am inclined to think the waste heaps on the surface will also pay well if re-assorted. It is possible to be too economical in working gold mines. Formerly the one idea was to get out only quartz rock, and pass it through the stamps as quickly and cheaply as possible. It is proved that the clay-slate and whin rock surrounding the veins contain gold; that much of the gold exists in a finely-divided state, and must, therefore, be passed through very fine holes, or else it is wasted. This is probably the reason of the improved state of things in our mine, for the quartz raised is said not to look so rich as formerly. Work in the mine was generally done by the day, but during the past year the contract system has been introduced. There are still several months work ahead on the Plough vein, which, judging from the past, should be very profitable. Much time and expense have been incurred searching for the Plough vein, east of fault, as yet without success, though still in our favour, I think, when deeper. Our principal work exploring has been directed in extending the tunnel (begun several years since) from the middle to the Mitchell vein, which has been accomplished, thus unwatering a group of veins about the Mitchell shaft to a depth of 70 feet. By driving west from the bottom of this shaft we expect to open out profitable ground, judging from the quartz seen, and what has already been done. To the north there is a small but rich vein, the Hattie, but little has been done on this; and again, further north are larger veins, which I trust will prove productive. We have a tunnel partly driven towards them, which will be continued as fast as possible. Most of the machinery has been on the mine several years, is in a tolerably good state of repair, as also are the buildings. Several mining areas have been added to the company's property."

This the directors confidently hope will be satisfactory to all, and the future prospects held out are such that they believe the company to be possessed of a really very valuable property. They have every reason to believe that the report is in no way flattered, and have likewise to express their entire satisfaction in all that has been done by Mr. Sprague, the manager, who has proved himself competent in all ways, economical, and earnest to make the property pay. The secretary, Mr. Morris, who had charge of the business of the company, died suddenly, and the directors took on themselves to present his widow with the sum of 25*l.*, as a mark of respect. On the demise of Mr. Morris, the directors appointed Mr. Trafalgar Brattle to his post, at the same salary, and they confidently believe him well fitted for the office. The balance-sheet will be found annexed hereto. During the year the directors, having received sufficient funds, have paid interim dividends amounting to 10 per cent., and they ask your approval of the same, and submit that a final dividend for the year of 7½ per cent. (1764*l.*) be now declared out of the profit shown by the balance-sheet, leaving a balance of 984*l.* 9s. 11d. (500*l.* of which, however, is represented by stock of materials at the mine) to be carried forward to next account. The auditors, Messrs. Brandt and Stansfield, retire, and offer themselves for re-election. In conclusion, the directors have only to congratulate the shareholders on the success of the past year, and to assure them that nothing on their part shall be wanting to ensure the future well-doing of the mine.

The capital account shows that out of the 25,000*l.* nominal capital 23,520*l.* has been subscribed and paid-up, and that out of this the purchase-money, 22,000*l.*, has been paid; also, for purchase of mine areas, 4*l.* 4s.; new machinery and plant, 1247*l.* 12s. 1d.; and preliminary expenses, 168*l.* 17s. 6d.: leaving 98*l.* 6s. 5d. balance.

The revenue account shows that there has been received—for gold sold the sum of 14,970*l.* 15s. 11d., and for crushing ores, exchange account, &c., 45*l.* 7s. 11d.; the stock of coal, &c., at mine is valued at 500*l.*=15,516*l.* 3s. 10s. Against this the payments were—Wages, 5809*l.* 8s. 10d.; materials, 1937*l.* 5s. 5d.; royalty, management, legal, office, and travelling expenses, 1502*l.* 19s. 8d.: leaving profit, 6266*l.* 9s. 11d. Out of this there has already paid in dividends 3518*l.*, and 2748*l.* 9s. 11d. is now available for distribution.

The CHAIRMAN had only to propose that the balance-sheet and report be adopted; he did not desire to add one word to it, or to take one word from it. It simply contained an accurate statement of what had been done at the mine and of their present position and prospects. They had, he believed, in Capt. Sprague a thoroughly competent mining captain—indeed, he had so far shown himself so, for if they had been left in the condition they were when he took the management their property would have had to be sacrificed, whilst it had now returned them a large profit. The first report which they received from Capt. Sprague told them that the reports they had previously received were not to be relied on, and the results he had obtained certainly justified his opinion. Capt. Sprague had been most attentive to their interests, and altogether he felt that they were very well served by him. They all knew that gold mining was somewhat hazardous, sometimes proving largely remunerative, and sometimes the reverse, so that as to the future of the mine he (the Chairman) could not say anything; but they had the facts that last year's working had given them over 1 oz. 6 dwts. 8 grs. of gold to the ton, and that Capt. Sprague was satisfied that he had at present five months' work in sight. They would, he thought, agree with him that the payments of interim dividends was desirable, and he hoped they would be continued. Their last shipment of gold, received on Friday, was 502 ozs., and the price realised was from 4*l.* 1s. 2d. to 4*l.* 1s. 7d. per ounce. Their accounts were made out from the commencement of their operations, and would, he believed, give satisfaction. At the death of their late secretary their accounts were a little in disarray, but they found everything quite correct. The directors proposed to pay the 7½ per cent. dividend on Monday next. He concluded by moving the reception and adoption of the report and accounts.

Admiral POWELL, R.N., C.B., seconded the resolution, remarking that as he had visited the property he would be glad to answer any questions which the shareholders might wish to put. The Plough lead was that which had given them their returns hitherto, and it was out of 33 ft. sunk upon that lead during the past year that they had obtained all their profits, and there was no reason to doubt that those profits would continue to a considerable depth. But they were also prospecting beyond the fault, and it was satisfactory to know that the miners out there had never failed to find the vein on the other side of the fault which had disturbed it,

and we are expecting by an early mail to hear that the vein has been intersected. The shaft on the middle vein was nearly full of water, and it was difficult to unwater it without driving a lower tunnel; but, this being done, the water is readily taken off to the sea. Capt. Sprague considers the prospects of the property more favourable now than when he first went to it. They had no agency expenses out there now, and all commissions were done away with, so that, although they paid Capt. Sprague a higher salary, they had effected much economy.

Mr. J. SAMUEL, C.E., enquired how many stamps were working, and what was being done with the additional machinery sent out?——The CHAIRMAN said that it was a steam-hammer which was sent out; at first it did not work satisfactorily, but he believed it was now in order. Mr. Baker had visited Wincharbour, and believed it would be turned to good account.

Admiral POWELL said the hammer was sent out to give them more crushing-power, but the stone was so hard that the anvil was broken. It had since been repaired, but Captain Sprague considered it undesirable to use it for his best ores; but they would hereafter have a large quantity of lower class ore, for which they would require the hammer.

The CHAIRMAN, in reply to the enquiry of a shareholder as to whether the larger veins toward the north had been cut into, stated that Capt. Sprague was now driving towards them.

A SHAREHOLDER understood that there was a piece of ground near the company's property which it was considered desirable should be purchased, and would be glad to know what had been done in the matter?——The CHAIRMAN said that it had not been purchased. The directors thought it was of doubtful value to the company, but they were willing to test it, and, therefore, made an offer to the proprietor that as it was so very rich they would undertake to work it upon receiving a proportion of the profit; but the proprietor did not see it, so the directors preferred not to throw away the company's money.

The reception and adoption of the report and accounts was then put to the meeting, and carried unanimously; and, upon the proposition of the CHAIRMAN, seconded by Mr. SAMUEL, the proposed dividend of 7½ per cent., payable on Monday next, was also agreed to.

The CHAIRMAN remarked that in their notice they had requested the shareholders to alter the date of meeting, the resolution being—"That the 29th clause of the Articles of Association be altered, by striking out the words 'either in the month of May or in the month of June,' and substituting therefor the words 'in the month of September.'" He explained that as they only got the accounts on Friday there was some difficulty in getting them ready for presentation on the following Monday. They proposed to avoid this for the future by holding the meetings three months after the date of closing the accounts.——Mr. BRADLEY seconded the resolution.

A SHAREHOLDER suggested that it would be better to close the accounts on March 31 instead of May 31. This would give the directors the remedy they desired, and would not necessitate any alteration in the Articles, which would, of course, be attended by some expense, although it might be small.

The suggestion was adopted, the CHAIRMAN in withdrawing the motion reminding the meeting that the profits shown in the next balance would be thereby reduced, as it would include but nine months' working; and Messrs. Brandt, Stansfield, and Co. were re elected auditors.

Upon the proposition of the CHAIRMAN, seconded by Mr. SAMUEL, thanks were voted to Capt. Sprague; and upon the proposition of Mr. SAMUEL, seconded by Mr. SATTERTHWAITE, who said he had attended many gold mining meetings, but that this was the most satisfactory one he had ever had the pleasure to attend, a similar vote was given to the Chairman and directors, which having been acknowledged the meeting separated.

BURROW AND BUTSON MINING COMPANY.

The first half-yearly general meeting of shareholders was held at the offices, Finsbury-circus, on Tuesday,

Mr. J. W. WILLIAMSON in the chair.

Mr. W. H. FORBES (the secretary) read the notice convening the meeting.

The report of the directors stated that they had delayed calling the present half-yearly meeting, as the shareholders have already been informed by circular, until the crushing and steam-whim were at work. These are now completed, and are working satisfactorily. There is now nothing to prevent a continuous and steady sale of ores, as far as the directors can foresee, as the 20 and 30 have opened up a large quantity of blende left by the former workers, and the dressing-floors and jigging machinery are nearly finished. From the great increase of cost in machinery, labour, and coal during the last twelve months the expenditure has been heavier than was anticipated when the company formed, and the first issue of capital being nearly exhausted the directors now proposed to issue the remaining 10,000 shares mentioned in the prospectus at par, to be paid up by easy instalments, and to be offered in the first instance *pro rata* amongst the existing shareholders. This will enable the directors to clear up the main shaft to the 62, and also the 40 and 50, where they have no doubt large quantities of ore will be found standing, and they are warranted in this expectation by their past experience. These various levels will also be driven eastward beyond the cross-course, when it is fully expected that a valuable deposit of silver-lead ore will be found. On the whole, the directors are satisfied that the shareholders have a most valuable property, which only requires a short time to become remunerative provided they are supplied with the small additional capital required to open up the mines to the extent above indicated.

The joint report of Messrs. Henry von Uster, F.G.S., D. R. Stickland, and John Christophers stated that the expenses, they regretted to say, had been heavy beyond their expectations at starting, which was entirely attributable to the exceptionally high prices of all materials required in mining, they being mostly 30 per cent., and in some cases over 50 per cent. (coals 100 and iron 130 per cent.) dearer than two years ago. Labour, also, was much dearer, but their apprehension of a scarcity of miners proved unfounded, not from any influx of miners, but because the low price of copper and tin had discouraged a full working of such mines in the west of Cornwall, and thus stopped a large field of employment outside the celebrated district of St. Agnes. The low price of tin and copper did not affect these mines, because the chief production of their mines was blende (sulphide of zinc), which must contiue to command good prices, and was likely to go higher in market value, manufacture in zinc multiplying daily. At present the number of zinc smelters was limited, wherefore they were somewhat difficult to satisfy as to quality; however, the blende from these mines was noted as some of the best in Cornwall, and although the market price of blende was much below what, no doubt, it would rise to, the capabilities of the mines were so great, and the means for raising it in large quantities from strong masterly lodes so perfect, that they would be able to continue raising it at a largely profitable price. That part of the main lode which had only just been laid open to view was worth 4 tons per fathom, thus proving that their calculation of having 7500 tons of blende, from an estimated average of 2½ tons per lineal fathom, between the adit and 30 fm. levels was rather under than overrated. But the richness of the lodes in extra valuable ores, however chimerical it might appear, had created a delay in arranging samples and sales. The English smelters objected to pay for copper intimately mixed with the blende, in consequence of which the ores had to be treated and dressed with particular care, so as to lose as little as possible of either mineral. They also obtained some fine lead, which would deteriorate the zinc, and must, therefore, be most carefully separated from the blende. The various proportions of the several valuable minerals contained in the very large lodes, for nearly the whole extent of the great length of the ore ground, imposed upon them the absolute necessity of subdividing the produce from the mines into several classes, which, of course, delayed their efforts (but must ere long succeed) to collect piles for sampling of acceptable quantities, in order to induce smelters to offer fair value for the ores, either coarsely broken or finely crushed. At surface they are now fully prepared for very extensive mining operations, but the dressing facilities and machinery, as at all other new and important mines, would continue to require the most particular attention, which will be sure to be devoted to it. The dressing machinery was being erected as fast as possible. A 24-in. cylinder steam (engine) whim and crusher was in good working order; ten jigging machines, assisted by a tramway, are also at work, and a buddle purchased, ready to be put in its place, with all appliances required for expediting such works. Underground they have ores laid open to the extent of thousands of tons. Nearly 40 miners are at work employed in stoping, and the ores brought to surface as fast as prudence will allow. The prospects of these mines are beyond speculation. Every point yet cleared has proved the correctness of all reports by former workers, but which did not include that of Capt. Thomas Hooper, of Wheal Vor, in 1854, on what is now named the South Mine, being distinct from the central or main lodes, with the advantage of being worked simultaneously with the latter. They now work it by means of flat-rods connected with the large pumping-engine. The engine-shaft is now fully prepared to be cleared and secured down to the 62 under adit (or 87 fms. from surface), where copper was raised just before stopping the mines, worth 9*l*. 10*s*. per ton, and will, driven west, meet with the shoot of copper dipping east from Wheal Butson, which should be reached and driven with as little delay as possible. Rich silver-lead and copper may with great confidence be expected to the east of all the present levels. The work executed during the last six months comprises:—Clearing and driving at adit, the 20 and 30 fm. levels east and west, 586 fms.; clearing up shafts and winzes, 164 fms. = 730 fms.; besides timbering the break in engine-shaft, and the several levels, and 124 fms. of ladder-road.

The CHAIRMAN said that every development had tended to confirm their original statement that the property was a valuable one, but their expectations had not yet been realised, as far as remunerative results went, owing to the low price now ruling for their produce, and from the fact that they were not yet provided with smelting-works. The reports now submitted had informed them that when the mine was handed over to the company there was still a large amount of work to be done. Their first object had been to clear up the old workings, and then to bring their blende to market. Of course blende in itself was not always a profitable metal to produce, but it usually led in depth to deposits of other and more profitable mineral, and the Burrow and Butson, there was every reason to believe, would in depth prove a valuable mine both for lead and copper. Their consulting engineer, Mr. Von Uster, F.G.S., and Capt. Christophers, one of the agents, were present to answer any questions as to the work that had to be carried on and as to the satisfactory condition of the mine for future development. The balance-sheet showed that the whole of the available capital had been expended when the company took over the mine. There was not only a great deal of "dead" work to be done, which had cost considerably more than could have possibly been calculated upon from the abnormal condition of the market for labour and materials, especially coal and iron. They had been trying very hard to get a sampling of blende to market, and had succeeded in getting one ready to the amount of 80 tons; unfortunately, however, just as they were ready to bring it to market the smelters, in whose hands they were most completely, dropped the price, and now they would have to sell it at a profit of only 10*s*. per ton, the present price being 2*l*. 12*s*. One shareholder had written to say that it was exceedingly desirable that smelting-works should be erected, but that was a matter entirely for the shareholders to consider and determine upon. The price their produce fetched in Germany was very much higher, besides which there was a general market there, whereas in Cornwall it was in very few hands. As he had already stated, the capital subscribed upon the first issue of shares had been expended; the arrears of call now amounted to 1100*l*., the whole of which was considered good. When they took over the mines it was thought that 20,000*l*. would be amply sufficient to accomplish the work, but, as the shareholders must know, the prices then, notably that of labour, were considerably less than those now ruling. The whole of the work, however, had been exceedingly well done, and the condition and prospects of the mine were most satisfactory. He then moved that the report and accounts be received and adopted.

Mr. GRAY seconded the proposition.

After some discussion, it was agreed that there should be a note appended to the balance-sheet to the effect that the 6000*l*. due to the vendor was to be paid only out of the proceeds of sales of ore, according to the agreement in the Articles of Association.

Mr. VON USTER, F.G.S., in reply to questions, stated that two smelting-furnaces, which could treat 300 tons per month, could be erected for 1100*l*. or 1300*l*.

The CHAIRMAN said the vendor had been most liberal in assisting the company, both with his purse and otherwise.

Mr. VON USTER said that everything was now erected except the dressing-floors, and paid for. He had made an estimate underground, assisted by Capt. Christophers, that the blende at present in reserve was 8000 tons, which could be raised as fast as broken, and hauled to surface by machinery; but it was of no use raising it before they were able to dress it and have a market in which to sell it. He advised the directors to stop raising blende for the time, and to give their attention to the copper and lead. The mine was no longer a speculation—there were at least a dozen points from which blende could be raised, and there were splendid prospects for copper. Twenty or thirty years since, when copper was a much less price than now, 50,000*l*. worth was sold in one year. Some months since the shaft was cleared up, and it was calculated that in about four months from this time, and at a cost of not more than 350*l*. to 500*l*., the deposit of ore westward, from which this large result was obtained many years since, would be got under, and the total cost of returning it, exclusive of dressing, would be about one-third less than in former times.

The CHAIRMAN, in reply to questions, stated that of the 6319*l*. subscribed, 5741*l*. had been expended on the mine.

In answer to a shareholder, enquiring whether the second issue of 10,000 shares was resolved upon, Mr. MORGAN, the company's solicitor, said that it was included in the directors' report, which had been adopted by the shareholders. This statement was received with general satisfaction.

After some further discussion, the report and balance-sheet was received and adopted. Messrs. Illingworth and Milnes were re-elected directors. Mr. Makepiece, a large shareholder, was appointed auditor. A vote of thanks to the Chairman and directors terminated the proceedings.

NERBUDDA COAL AND IRON COMPANY.

The thirteenth general meeting of shareholders was held at the London Tavern, on Thursday—Mr. SAMUEL J. WILDE in the chair.

Mr. FREDERICK R. BLUETT (the secretary) read the notice convening the meeting.

The report of the directors stated that the quantity of coal sold during 1872 amounted to nearly 8000 tons. The coal at heap on January 1, 1873, was estimated at 300 tons round, and 2000 tons small. The colliery consumption during the year may be calculated at about 3 tons per diem. The directors believe that the collieries are now being worked in an efficient manner, and certainly at a considerable reduction of cost, which may be attributed, in a great extent, to the alteration made by Mr. Maynard from day-work to piece-work. Several official visits have during the past year been made to the collieries by the Chief Commissioner of the Central Provinces, Mr. Medlicott, of the Geological Survey of India, and others, and much satisfaction at the greatly improved practical development of the mines has been expressed. From advices recently to hand the directors are pleased to report that the water in the old incline had been during the month of April reduced 53 feet, thereby giving five workable places north-west thereof. The fire also in the No. 2, or Keating's, level is almost at an end. In this level Mr. Maynard anticipates obtaining some first-class coal. As the foregoing have always been considered to be places from which much coal might be obtained, it is hoped that, now they are made available, the output will be materially augmented. In the No. 1 north level, over 16 ft. rise dyke, coal was struck on April 24, thus giving a new area. A 60-horse power engine for sinking the new pit, ordered some time since, is in course of construction, and may be expected to be ready for shipment within the next two months. The total cost of the engine f.o.b. will be 2980*l*., of which sum 935*l*. has already been paid. In accordance with the request of Mr. Maynard, the directors have purchased and shipped a 20-horse power engine, by Robey and Company, of Lincoln, and one of Tangye's special pumps, for draining the No. 2 shaft, at a cost of 103*l*. The engine can be used either with the special pump or for pit sinking. As a market for the sale of the small coal appears to be opening up, the patent process for utilising coal-slack has, under the advice of the manager, for the present been abandoned, and the board have, therefore, postponed carrying out the intentions notified in the last annual report, of sending out larger machinery for the manufacture of the patent fuel.

The CHAIRMAN said that he regretted there had been no material increase in the out-turn of coal. Mr. Maynard had hoped to increase the out-put before this time, but had been impeded by several causes—the fire in Keating's level, which at the date of the last advices had been nearly extinguished, and another level, from having been driven too near the river, had become inundated during the rainy season, but steps had been taken to prevent its recurrence. Some difficulty had been experienced in regard to labour, to some extent attributable to the introduction of piece-work, in the hope that the out-turn of coal would have been increased. As a fact, they had been able to raise coal cheaper, but the quantity had not been increased; but by this system an increased number of working places would bring about an augmented output. He had always had some little doubt upon this point, which was one of the reasons why some years since he impressed upon the Great Indian Peninsula Railway that coal mines could not be made in a day, and, therefore, urged upon them the desirability of making such terms with this company as to place them in a position to turn out large quantities of coal as soon as the railway should require it. They now wanted large quantities and the Nerbudda Company could not supply it, one reason being from scarcity of force. Mr. Maynard entered fully into these matters in his report. The colliery, however, was now worked in an efficient manner, which the directors heard from various independent sources, one the engineer of the Bombay and Baroda Railway, who was a very large shareholder in this company, visited the colliery at his (the Chairman's) request, and he was very well satisfied with all that was doing. In No. 1 level north coal was struck on April 24, which would give an additional supply, although the quantity could not, of course, be stated. The most serious thing in the report was the accident in the Alice Maude Pit. When everything was going on satisfactorily, and the pit had been sunk 40 or 50 ft., it was found that the two sides had come upon running sands; large quantities of timber were put in, but the pit, first twisting out of shape, finally closed in, when the accident occurred by which one European and 11 natives were killed. At the inquest, which was held by the Government authorities, the company's officers were completely exonerated from any blame whatever. Besides the loss of money, amounting to between 900*l*. and 1000*l*., the loss of six months in time was of still greater importance. Boring had since been commenced where there was no reason to suppose quicksands existed, additional machinery had been sent out, and there was no doubt whatever that they would be able to materially increase their output if they could get an additional supply of labour. The last advices received, on Monday, informed them that nearly their full staff had returned, showing that no permanent injury to their labour market had been occasioned by the accident. A great deal of consideration had been given to the question as to the power of the engine to be sent out, because they did not know for certain within 200 ft. what depth the water would have to be pumped out of the pit; among others, the opinion of an eminent mechanical mining engineer had been obtained, and he recommended a 60-horse power. The engine selected was so constructed that if it should prove to be of insufficient power one, two, or three more boilers could be sent out without adding very materially to the expense. They had also purchased on reasonable terms an engine from the Bombay and Baroda Railway Company, for the purposes of the No. 2 shaft, from which another supply of coal could be obtained. Hitherto there had been no appreciable demand for their small coal; that brought to surface was wasted, while a great deal was left underground, which really was the cause of the fire. If they were able to sell all their small coal there was no reason whatever to leave any of it underground. Their last letters informed them that the Bombay Gas Company had ordered a truck-load with a view of determining whether it was fit for gas purposes. He might say that he knew it was, because some years since experiments were made at Jubbulpore, which proved the coal fit for such purposes. Coal was dearer now in Bombay than it had been for some considerable time, and although the carriage from the mines to Bombay was at present 46*s*. per ton, there was no doubt that if large quantities were taken lower rates could be arranged with the Great Indian Peninsula Railway Company. The Public Works Department were also customers for their small coal, which was one reason why they had given up the manufacture of patent fuel. The Great Indian Peninsula Company did not help the Nerbudda Company in the way they might, for their rates for the transit of coal were very high, which, however, was not material, as far as their ordinary produce [illegible] concerned, because they at present sold their coal only to the [illegible] way company, but the charges for the small coal, of which [illegible] took none, were excessive, in fact, they were entirely prohibi[tive]. He (the Chairman) had been in correspondence with the Great I[ndian] Peninsula Company upon this very subject, in which he pointed [out] that the loss thus brought about was equally felt by both [com]panies. The original contract with the Great Indian Peni[nsula] Company expired in January last, when they had hoped to have [ob]tained a very considerably higher price for their coal. He consul[ted] with some of his Indian friends connected with the railway, [and] said that the quantity of coal supplied was so small compared [with] what they required they did not care about having it at all. [Re]plying that if the whole of the coal required could be supp[lied] higher prices would be paid. But 8000 tons a year was not a c[om]plete bagatelle, especially when comparing the immense differ[ence] in price as against English coal. A well-informed authority [on] the subject says that "Native coal is delivered fresh from the [pit] whereas English coal is much damaged by shipping and un-shipp[ing] and is some months before it is used; for these reasons fresh [Na]tive and English coal—as we use it—is more upon a level than we [im]gine." That has been his (the Chairman's) opinion for years. [Mr.] Foster, one of the directors, a large coalowner, and practically [ac]quainted with the subject, says that the Indian coal is certainly [not] below the average of a great deal of the English coal that is [used] although below the average of English coal shipped to Indi[a for] railway purposes. As he had said, the contract with the G[reat] Indian Peninsula Company terminated in January last, and it [had] been hoped a considerable increase in price would have been [ob]tained, but the railway company objected. A quarrel was not d[e]sirable, or it might have been a question whether it would be [well] while not to sell any coal until they were able to supply the [full] quantity required. But that would entail calls upon the [shareholders] as well as a quarrel with the Great Indian Peninsula C[om]pany, so that it was decided to continue for the time to supply [the] quantity required at 18*s*. per ton—therefore, at the outside [the] supply could at any time be determined at six months' notice. [The] geological authorities were perfectly satisfied as to the quantity of coal; from a knowledge as to where these trap-dykes exist[ed] authorities on the subject had come to the conclusion they did [not] extend beyond a given distance, and when away from their influ[ence] the coal would be found very nearly level—that is, the point [at] where the shaft is now being sunk. The only question is [as to] depth it would be found. It is calculated to be found at [about] 700 ft. deep, although it is generally supposed it will be [found] upon nearer the surface. He then moved that the report and [bal]ance-sheet be received and adopted.——Mr. HAWKINS seco[nded] the proposition.

Mr. J. A. SMITH said the company had now been working 13 years, and he [would] to know what were their prospects?

Mr. WAGSTAFF asked what had been done with regard to the question of [iron]——The CHAIRMAN said the matter had not made any further progress. [He] had told them upon previous occasions the company had not only equitably legally been freed from any obligation to make iron. As to the prospects, [he] lieved they could turn out from the present pits a larger quantity of coal than were now doing, but it would take time and labour. They also hoped to be to get higher prices, looking at the value of coal in this country, which likely to be the standard price. They were not, however, masters of the situation if they could supply large quantities they would be masters of the situation. the present time they were working at a small profit, after paying all expe[nses] and that had been so for the last six months. A moderate increase either output or price would soon turn the present profit into an amount sufficient pay dividends. Directly they could get the shaft down in the Mulpee [pit] there is no question they would have the large supply of coal they imagined possessed a few years since. They would then be masters of the situation, and enabled to pay good dividends. There is no more question about finding coal the coal neighbourhoods than there is in the coal strata in this country.

Mr. WAGSTAFF asked if there would be any necessity to make a call?——The CHAIRMAN was afraid there would be, on account of the machinery. One third the cost of the heavy machinery had been paid for, but the whole of the other had been paid for. They had some money in hand, but he was afraid a call of 6*l*. per share would be necessary, but it would not be made before actually needed.

The report and balance sheet were received and adopted.

Upon the proposition of Mr. CORBETT, seconded by Mr. NEWBERRY, the retiring directors were re-elected.

The CHAIRMAN, in acknowledging his re-election, stated that he had been from the commencement a very large shareholder, and his relatives had also been [large] shareholders from the commencement. He assured the meeting he gave the [most] possible attention to the promotion of the company's interests, not only for the sake of the shareholders, but likewise for his own, as well as that of his family.

Mr. HAWKINS also acknowledged his re-election. He was elected to a seat at the board rather as a malcontent, but he was bound now to confess that he had [entirely] rated the difficulties of carrying on the operations of a company of this kind. The directors had had a most arduous task, and he believed they had been actuated by a most sincere desire to do the best for the undertaking, and that if it were possible to turn this hitherto disastrous affair into a prosperous one it would be done as soon as possible.

Upon the proposition of the CHAIRMAN, seconded by Mr. GOODFELLOW, the retiring auditors were re-elected.

Mr. WAGSTAFF had much pleasure in proposing that the best thanks of the shareholders be given to the Chairman and directors, who had, no doubt, used their best exertions to ensure success.——Mr. SCARF seconded the proposition, which was put and carried unanimously.

The CHAIRMAN having appropriately acknowledged the vote, assured the shareholders that the best was being done. He believed the enterprise was sound, that it could be made to pay. Taking the shares at par, he believed they had a sound undertaking, which would pay a fair remuneration in the shape of dividends; of course he expected more than 5 per cent. The only question was that would come into operation.——The proceedings then closed.

WHEAL AGAR MINING COMPANY.

A meeting of shareholders was held at the mine, on Tues[day], under the presidency of Mr. JOHN WESTON, of London. The [ac]counts showed a credit balance of 40*l*., the labour cost and [mer]chants' bills having been charged up to May 23. There is owing [to] merchants 2804*l*., against which there are arrears of call 100*l*. [and] call of 5*s*. per share was made.

The CHAIRMAN informed the meeting that Mr. W. A. Buckle[y] (the secretary) had resigned on account of a press of business. He thought that [they] should put the office into hands where it would receive attention and [be] whether here or in London.—Mr. TREGLOWS and several other adventurers [ex]pressed a hope that the summer meetings might be always held in Cornwall, as it [was] ably impressed the public when meetings were held on the spot.

The appointment of a secretary was left to the Chairman and Mr. Waddington.

Mr. WADDINGTON said that before they parted he had a matter of some importance to bring before them. They would remember, no doubt, that the last meeting of East Pool adventurers Mr. Dennis (the Chairman) [spoke] Wheal Agar people for stopping their western engine, inasmuch as East Pool [were] keeping Wheal Agar driving to the 130, and thought that the matter should be brought before Lord Robartes. Mr. Waddington went on to say that in May last he received a telegram from Capt. Edmund Rogers to come down and meet East Pool committee at Mr. Jenkin's office, which he accordingly did. There he had a long discussion, which ended by Mr. Cartwright (Capt. Basset's agent) proposing that Wheal Agar should put its small engine to work, and when Wheal Agar was in fork the water should be gauged, and the cost divided between the two mines. Also, that Wheal Agar should pay part of the cost of the claims in by East Pool, and in the case of dispute the lords' agents to be referees. This was agreed to, and their engine worked on until the following Saturday, when they were much surprised to receive a letter from East Pool committee, stating that they could do nothing until they had laid the matter before a general meeting of the shareholders. From this they (Wheal Agar) understood that East Pool had repudiated the agreement, and they accordingly stopped their engine, and put up the pitwork, which was now all offered for sale. Considering that from 1848 to 1854 they had paid East Pool people 2960*l*. as water-charges, besides 20*l*. or 30*l*. a month at Wheal Tehidy, he did not see why East Pool should be so hard on them.

Capt. ROGERS said if they put their 70-in. engine to work they would drain two-thirds of East Pool, besides drawing miles of eastern water. The best plan would be to tap the dams, and let East Pool have its share of the whole lot.

It is, therefore, understood that the matter remains quiet for the present, to see if any movement will be made by East Pool.

The report of Capt. Edmund Rogers says—"We are looking forward to having at an early day, all our mines working on profitable tin ground, when we believe the shareholders will be satisfied with their long patience and perseverance."

WEST BASSET.—The three-monthly meeting was held on June 2[6]. when a most promising report and statement of accounts were presented. Many outside shareholders have wondered that a dividend has not been declared on this, but those of them who will take the trouble to inspect the improvements which have been made need wonder no more; better laid out tin-floors can hardly be met with in the county, and yet there is not accommodation enough for the tin stuff that is being broken, inasmuch as they are compelled to sell hundreds of tons in the stone. Would that all mine managers could be brought to see the wisdom of so doing, and be persuaded to put their mine and machinery in thorough working order before they attempt to declare dividends, out of materials or otherwise as the case may be. It will be pleasing to the public to find that the committee have overcome their rather foolish objection to the admission of reporters, since it is far better that the outside shareholders should be made cognizant of what is going on than that the proceedings of the committee should be carried on in secrecy, thereby giving rise to suspicions for which there may not be really the slightest foundation.—Capt. Evans, in reply to questions, stated that about 200*l*. worth of coals had been charged for more than had been actually consumed. He did not think at present that there was any probability of coals being cheaper, the freight had gone down, but not the price of coals to any great extent.—Capt. Nicholas says—"During the last nine months we have spent about 600*l*. in improving the machinery and laying out and covering the tin-dressing [floors]

notwithstanding the heavy drop in both the tin and copper standards, which ...ve a difference of 2000*l.* in three months, I calculate for the ensuing quarter to ...e than pay cost." Number of men employed underground on tutwork, 149; ...on tribute, 98; total, 247.

COLONIAL BANK.

The seventy-first half-yearly meeting of proprietors was held at London Tavern, Bishopsgate-street, on Tuesday,

Mr. J. GURNEY HOARE in the chair.

Mr. JAMES CLARK (the secretary) read the notice convening the ...eting, and the subjoined report of the directors:—

...ccordance with the provisions of the charter the directors now submit to the ...olders the usual statement of the debts and assets of the corporation on Dec. 31 ...which also shows the net profit for the half-year ending at that time period.

DEBTS.			
Circulation	£	405,702	0 0
Deposits, bills payable, and other liabilities		2,861,895	6 8
Paid-up capital		600,000	0 0
Reserved fund		70,000	0 0
Balance of profit from last half-year		1,241	1 5
Net profit for the half-year		47,162	11 10
Total	£	3,986,000	19 11
ASSETS.			
Specie	£	282,582	7 3
Due to the bank in the colonies, on bills discounted and purchased, including those past due, &c.		1,753,294	13 0
Due to the bank in the colonies on current account		42,213	10 11
Due to the bank in London, on bills remitted, cash at bankers, &c.		1,900,890	2 6
Bank premises and furniture in London and in the colonies		7,020	6 3
Total	£	3,986,000	19 11

...e directors have the pleasure to state that the business of the branches generally ...gressing satisfactorily. It is, however, to be regretted that the sugar markets ...rope and of the United States have for some time shown considerable depres- ...; it may fairly be expected, however, that the late reduction of the duties in ...country will lead to increased consumption, and an improvement in the prices ...s staple production of our West Indian colonies.

...e directors have to announce the retirement, from failing health, of Mr. Calvert, ...had held the office of secretary to the bank since its formation in 1836; and, ...sideration of Mr. Calvert's long and useful services, the directors have per- ...ed him to retire on his full salary. He is succeeded by Mr. James Clark, who ...been upwards of 26 years in the service of the bank, and was for many years ...chief accountant.

...e directors have now the pleasure to recommend that out of the net profits ...ning, after providing for bad and doubtful debts and ...come tax, to £47,162 11 10

...n ordinary dividend of 6 per cent., and an extra- ordinary dividend of 1½ per cent. be made upon the paid-up capital of the corporation, which will require 45,000 0 0

Leaving £2,162 11 10

To be added to the balance from last half-year of 1,241 1 5

Making £3,403 13 3

Of which the directors propose to carry to reserved fund 2,000 0 0

Thereby increasing it to 72,000*l.*, and the balance carried forward to next half-year of £1,403 13 3

...e CHAIRMAN had really very little to say in proposing the first ...olution for the report told them the whole state of the working ...the bank, but it had certainly not been an easy year to manage. ...e price of sugar had been unfavourable; but that was not all, for ...e weather had also been bad, there having been vastly too much ...ght in the West Indies, so that they had not only had a miserably low price, but a ...ndicap to sell even at that. They had to stand against the immense rivalry of ...German and French beetroot sugar, especially the latter, for, owing to a draw- ...allowed by the French Government, the French sugar could be sold more ...ly in London than in Paris. He hoped that the British Government would ...ect against that drawback, and that the protest would be successful. The last ...been a very bad year for the sugar trade, and he was sorry to say that it seemed ...getting worse. The price of sugar they sent out by the last packet was 1s. less ...the previous quotation, and he did not know whether they had yet reached ...orest. He concluded by formally moving the adoption of the report.

...r. HILL (deputy-chairman) seconded the resolution, which was then put to the ...ing, and carried unanimously.

...e CHAIRMAN said that the next resolution was one which they had not usually ...difficulty about. It was that an ordinary dividend of 6 per cent. and an ex- ...ordinary dividend of 1½ per cent. be declared.

...e motion was seconded by Mr. HILL, and unanimously adopted.

...on the proposition of Mr. W. CASTLE SMITH, it was unanimously resolved ...the best thanks of the meeting be given to the Chairman and directors; in ac- ...ance with which the CHAIRMAN remarked that he did not know that they would ...ld be able to declare dividends equal in amount to that now sanctioned; but ...proprietors might rest assured that whenever it was reduced it would be done ...their best consideration for the permanent interest of the bank.

...e meeting then separated.

[For remainder of Meetings see to-day's Journal.]

MONTGOMERYSHIRE AS A MINING DISTRICT.

...is county seems destined to become as famous for its lead as ...rnwall has, from time immemorial, been for its tin. The Van— ...leviathan of the county—still continues to supply its thousands ...tons yearly, and we are told never looked better or more promising ...n it does now. In close proximity is Van Consols, whose goodly ...e of ore at surface—not to mention the large reserves laid open— ...eaks volumes of hope to the fortunate adventurers who hold shares ...the undertaking. Further west comes the Nant-y-Ricket, from ...report of the agent at which mine (published in another column) ...gather that a rich lode of lead ore has been cut into in the No. 2. ...is discovery is, of course, one of the utmost consequence to the ...areholders, the more especially as it is made in a level which, taken ...ically or lineally, is still only a few fathoms from the surface, it ...ng driven a little over 40 fathoms. This level, we may remark, ...up till very lately been highly productive of copper. The dis- ...very of lead is rendered all the more satisfactory from the fact that ...was predicted by all of the many engineers who have seen the pro- ...erty—including Capt. Roach, of the Van Consols, Capts. John Paull, ...l Manley, and others—all of whom were fully confident that in ...th the copper would give place to lead, and that the latter would ...found in large quantities. These gentlemen will be glad to know ...at their most sanguine hopes are in a fair way of being realised. ...iscovery of this nature is one of great interest and importance, ...t only to the shareholders, who derive the immediate material be- ...it from the circumstance, but to the whole mining community, ...much as it goes a long way to prove that the wild mountainous ...ions around Llanidloes will, ere long, be second to none in the pro- ...ction of mineral wealth. Good and careful management alone is ...ded to develope the resources of the county in such a manner as ...render it the most profitable field for mining enterprise in Wales, ...pecimens of the Nant-y-Ricket ore—the matrix of which is such as ...delight the heart of a true miner—may be seen at the company's ...ices, 16, Finsbury Pavement, E.C.; and those for whom the rugged ...nery and the breezy heights of Wales has any charms might well ...mbine business with pleasure, and, in visiting the Nant-y-Ricket ...d neighbouring mines, traverse the favoured region around the ...ern Valley to which we have referred.

EAST BASSET is one of the most promising mines in Cornwall, and ...great rise in value must shortly occur. Capt. Pryor has taken the management, ...d will shortly report on the value of the discoveries, and he promises that calls ...n soon cease and profitable results be shown. It is said that the extent of the ...ground now laid open will admit of 100 additional hands being employed upon ...while the chances of copper in the Copper Hill part of the mine are exceedingly ...od. The mine is on the south side of Carn Brea Hill, and in the midst of the ...ebrated Bullers and Bassets, and other rich mines, while Carn Brea, Tincroft, ...South, Cook's Kitchen, &c., &c., are on the north side of the hill. There being ...y 512 shares in the mine at the present price of 14*l.*, it is but 7000*l.* for the whole ...roperty, machinery and everything. The shares are, however, being quietly ...icked up, for it is well known that as soon as the mine makes a profit they will ...to 100*l.* each at least. The "bears" are trying their hardest to knock down the ...ares, but they will be defeated by the steady buying which is going on—nearly ...l per share has been called up, and shares were selling for 200*l.* each, when they ...re paying dividends.

BAMPFYLDE MINE.—The following is extracted from the "Post ...ffice Directory of Devonshire and Cornwall," published 1873:—"Bampfylde Mine, ...the parish of North Molton, union of South Molton, is situate about 3½ miles ...rom South Molton station on the Devon and Somerset Railway. The mine is held ...nder lease at a royalty of 1-15th, and 100*l.* per year sleeping rent to the lord of the ...anor, granted by Lord Poltimore, of Poltimore and North Molton. The sett is ...bout two miles in extent. The country is hilly, and the dip west. The cleavage of ...the clay-slate dips west and south. The nearest granite is at Lymouth—12 miles. ...The slides dip east, west, and south. The Poltimore lode runs east and west, and dips ...south about 12 in. in 1 fm. It consists of micaceous iron, quartz, and grey sulphate ...of copper. The Bampfylde lode runs east and west, and dips south about 2 ft. in ...a fathom. It consists of quartz, and grey sulphate of copper. The known cross- ...courses are five of clay-slate. There have been five shafts sunk. The No. 1 shaft ...is sunk 60 fms. There are the following levels in this shaft:—The 20 is driven ...20 fms.; the 30 is driven 130 fms.; the 40 is driven 10 fms. south. The No. 2 ...shaft is sunk 60 fms. There are the following levels in this shaft:—The 20 is driven ...5 fms. The No. 3 shaft is sunk 70 fms. There are the following levels in this shaft:—The 20 is driven 30 fms.; the 30 is driven 50 fms. The No. 4 shaft is sunk 112 fathoms. There is the following level in this shaft:—The 20 is driven 20 fms. The No. 5 shaft is sunk 10 fms. The mine is worked by water-power. The chief wheel is 50 ft. in diameter, 5 ft. breast in water, and 5 ft. stroke. The mine is drained by a 17-in. plunger and 10-in. bucket. The minerals found on this sett include grey and yellow sulphates of copper. Seven large lodes of hematite, micaceous iron, and manganese of very rich quality have recently been discovered, as also a lode of yellow horse-flesh copper, which yields a high percentage. This mine was first opened in 1851, and was worked by Mr. Wm. W. Mansell under the name of the Poltimore Gold Mine. It is now worked for copper and iron by a company designated the Bampfylde Copper Mining Company (Limited)."

THE MALDON GOLD MINING COMPANY.

It must be generally gratifying to notice that English capital is again being directed to the development of the rich gold mines of Victoria, Australia. The Maldon Gold Mining Company, with a capital of 50,000*l.*, in shares of 2*l.* each, has been formed to purchase, for 30,000*l.*, and work two rich and well-known mineral estates—the Bell's reef and the North of England reef—both in the famous Maldon division of the Castlemaine district, Victoria, and over 16 acres in extent. They are held direct from the Crown, free from royalty, and at yearly rents amounting to 17*l.* 0s. 10d. in all. Two parallel lines of gold-bearing quartz pass through the entire length of the Bell's reef property, one of which has been opened and profitably worked. The last 945 tons of stuff averaged 16 dwts. 5 grs. per ton, which, with proper machinery, would enable the company to realise a very handsome result. Experience has shown that quartz with 4 dwts. of gold to the ton will pay expenses. An average of 10 dwts. per ton, with a weekly output of only 500 tons of quartz, the net produce, after payment of expenses, would amount to 400*l.* per week, or 20,800*l.* per annum. The North of England reef has three lodes passing through the whole length of the property. It is estimated to be equal to a weekly output of 800 tons, which at 10 dwts. to the ton would represent a net yearly revenue of about 31,200*l.*; so that the two workings combined would give 52,000*l.* per annum profit, or sufficient to permit of the return of the entire capital of the company in a single year, and still to leave a good balance to carry forward.

The confidence of the vendor in the property is evidenced by the circumstance of his having agreed to accept payment partly in cash and partly in fully-paid shares, at the option of the directors, and at the same time depositing Government stock in the names of the trustees to guarantee 10 per cent. dividend for three years, long before which period, it is expected, the company will be deriving the full benefit of the proposed additional works. The purchase includes the whole property, including plant, buildings, rights of way, and improvements. The reports of Mr. William Salter, F.G.S., and of Mr. Robert Nankivell, the district mining surveyor, are particularly satisfactory. Mr. Salter has sent samples of the produce and a certificate of the local justices of the peace and shire councillors as to the accuracy of the reports, and stating that the properties are well known to them, and are *bonâ fide* mining properties, which is confirmed by Mr. Griffiths, the manager of the Bank of Victoria, at Maldon. He states in his report that none of the parties whose names are attached to the certificate have any interest whatever in it; adding that the mines can be cheaply worked, and no doubt can be entertained of their value, as the parties signing the different documents fill the highest positions in Maldon, and have resided there for many years. Mr. Nankivell reports that the mine, if it were systematically worked by the aid of proper machinery, would afford handsome dividends, after deducting working expenses, as the rock being of schistose formation, and the water-light, is comparatively inexpensive to work.

It would appear that energetic working is alone necessary to make the mines highly remunerative, and everything is in readiness for commencing operations in Bell's reef at once. The shaft, which is in good order, is 260 ft. deep, and a cross-cut has been driven through the lode, where it shows a thickness of 13 ft., and is well defined. The mine has hitherto been worked by a horse-whim, and the appliances, owing to the want of capital, are of a rude and primitive character. The machinery on the ground consists of a 12-in. cylinder horizontal engine and boiler, with brick shank, 12 heads of rotating stamps, two pairs of revolving Chilian mills, blanket-tables, ripple-tables, &c., for amalgamating and retort furnaces, with smithy, all housed; also a lift and large reservoir for supplying the stampers with water. The prospectus will be found in another column.

GOLD MINING AT TAMBAROORA.

It seems that the Western gold fields of New South Wales are equally, or even more, remunerative than the most favoured mining districts in the Western gold fields of the United States, so that it may fairly be anticipated that British capitalists will not be unwilling to provide a fair proportion of the capital required for their development. At present the attention of practical miners in the colony appears to be chiefly centred upon the Hawkins' Hill claims at Tambaroora, and the marvellous results obtained there appear fully to justify their choice. The leading claims are reported gradually to increase in productiveness, the enormous yield of 15,000 ozs. of gold from 400 tons of quartz being amongst the recent announcements. Only a few months since 2 tons of quartz, taken from Messrs. Paxton and Holman's mine, yielded considerably over 16,000*l.* worth of gold, but this is, of course, exceptional, yet, from Krohmann's mine, the richest on the hill, it is true, the yield has also been extraordinary. In one crushing 16 tons yielded a cake of gold weighing 5614 ozs., and of the value of over 22,000*l.*, whilst in another crushing 15½ tons of quartz yielded 6733 ozs. of gold, the general result of the operations being that in four months the company were enabled to return as dividend 62½ per cent. on the original capital of 80,000*l.*, and in the succeeding two months even these brilliant results were surpassed, for within the half-year the shareholders had received 1*l.* 0s. 6d. in dividend for each 1*l.* invested, in addition to which a large credit balance was carried forward. Nor are these results confined to a single mine, for 4000 tons of quartz from nine distinct properties, crushed at Chappell's mine, yielded 40,000 ozs., or 10 ozs. per ton on the average.

Still richer than Krohmann's was the claim worked by Beyers and Holtermann's company, for they returned 75 per cent. of the subscribed capital from three months' working; and several other claims are giving enormous profits, although the dividends declared are not announced, whilst the permanence of this prosperity may be judged of from the statements in a private letter, dated Dec. 27, that "The old Hawkins' Hill is still keeping up its reputation by the immense yields of gold which are being constantly discovered. Beyer and Holtermann's claim still takes the lead, and Krohmann's comes next. The Star of Peace struck splendid gold a few days since, and it is anticipated that it will prove as rich a mine as any on the hill. Most of the other claims are now on good gold, and several of the outside mines have struck heavy. A splendid roadway has been constructed along the south-eastern side of Hawkins' Hill, and has opened out the Great Australian ground, and disclosed many fine lodes which were before unknown." As an English company, the GREAT AUSTRALIAN GOLD MINING COMPANY, with a capital of 200,000*l.*, in shares of 2*l.* each, is now inviting subscriptions for purchasing and developing the Great Australian Gold Mine; this latter statement will be particularly gratifying to those connected with the undertaking. With regard to the prospects of this mine, it need only be mentioned that Messrs. Johnson and Matthey's assay shows the Great Australian quartz to be worth 82¾ ozs. of gold and 17 ozs. of silver to the ton, whilst, as has already been seen, the average yield of Hawkins Hill quartz is 10 ozs. to the ton; yet the promoters of the company do not take either of these yields as the basis for their calculations, but make an almost absurd allowance for contingencies, and assume the production of only one-fifth of the average referred to—2 ozs. to the ton—which, they observe, working this mine only upon a comparatively limited scale, would more than suffice to pay back its working capital yearly to shareholders. Thus, supposing 200 tons to be crushed per week, and yielding as low as 4 ozs. per ton, the result would be 800 ozs. at 3*l.* 19s. 6d., equal to 3180*l.*; after deducting weekly expenses (say, 200*l.*), with cost of crushing at 5s. per ton (50*l.*), 2930*l.* net per week would remain, or 152,360*l.* per annum, equivalent to a dividend of nearly 80*l.* per cent. per annum on the whole capital of the company.

Up to this time the operations at the mine have been solely with a view of testing its value, and in every case most encouraging results have been and are still being obtained. A main shaft has been begun, which it is proposed to sink in the first instance to a depth of 500 feet, intersecting the belt of gold-bearing lodes traversing the entire length of the property. As these lodes are met with in the shaft levels will be driven along their course, and the stone can be raised to the surface by means of trucks and cages. In this way vast quantities of gold-bearing quartz may be brought to bank at the lowest possible cost, and to facilitate its treatment upon the most economic principles an extensive and complete crushing plant will be erected, provided with all the latest improvements and appliances for the extraction of gold. The rich auriferous pyrites found to exist in connection with these lodes, hitherto neglected on this gold field and allowed to go to waste, will receive careful treatment; and the directors propose at once to build a reverberatory furnace for roasting this material, to more perfectly extract the gold.

The history of the gold mining at Tambaroora, as remarked by Mr. Charles Nichols, dates back only a few years, when many of the lodes between the Turon and Macquarie Rivers were partially opened up, but want of suitable machinery for the proper development of the mines caused them to be abandoned. He mentions that there were few among the early discoveries of gold which exceeded in richness the vast alluvial deposits of Tambaroora, and he adds that the district may be said to cover an area of some 30 square miles, and extends from Green Valley on the north to the Granite Mountains on the south. The country for a radius of many miles consists of a series of slate beds, which are traversed longitudinally by a broad belt of gold-bearing lodes, many of which have been proved to be of unparalleled richness. These lodes vary in thickness from 6 in. to 4 ft. and over; and while pursuing a northerly and southerly course through the country, underlie, with a gentle inclination below the horizon, some to the east, others in the west. With regard to Hawkins' Hill itself, he explains that upon the eastern side the ridge, or main height of Hawkins' Hill, above the trough of Oakey Creek, is 500 ft. in perpendicular depth, the angle of the slope of the hill-side being about 25°, while the difference of level between the same hill-top and the Deep Creek, at the base of the eastern side, is fully 1000 ft., or a difference of level between Oakey Creek and the Deep Creek of fully 500 ft. This circumstance gave rise to the method of working the Long Drive Mine—to drive a main tunnel from the low level of the Deep Creek to the western boundary of the property, a distance of 1000 ft. In the Balmain, Imperial Crown, and Iron Mask Mines a number of valuable lodes have been opened up, all of which, like those in the Long Drive, traverse the Great Australian Mine from north to south.

The reports of the other inspectors who have examined the property are quite as satisfactory as that of Mr. Nichols. Thus, Mr. J. J. Robertson, the Government Surveyor, reports that there are a number of reefs traversing the mine, showing on the surface on several places. The stone is of a gold-bearing character, and there can be little doubt that when depth is attained it will be found highly auriferous. The natural features of the country are highly favourable for working the mine at a reasonable outlay. He considers the property well situated, and can with every confidence recommend it to capitalists as a good mining property. Mr. J. J. Coates, C.E., M.E., has a very high opinion of the reef, and altogether the prospects of the undertaking are most encouraging.

FOREIGN MINING AND METALLURGY.

No great amount of business has been passing at Paris in copper. Chilian, in bars, delivered at Havre, has brought 91*l.*; ditto in ingots, 92*l.*; and Corocoro minerals, 94*l.* per ton. Chilian copper has remained quiet at Havre; first marks have made nominally 89*l.*, and good marks 87*l.* per ton. The German copper markets have presented a downward tendency. Tin has been advancing at Paris, Banca, delivered at Havre or Paris, is quoted at 146*l.*; Straits at 144*l.*; and English, delivered at Havre or Rouen, 144*l.* per ton. The German copper markets, without presenting much animation, have exhibited a better tendency. Lead has maintained previous rates at Paris, French, Spanish, and English having made 24*l.* 4s. per ton, without reference to place of delivery; while German and Belgian, delivered at Paris, have made 24*l.* 12s. per ton. The German lead markets have been well sustained. There has been no great amount of business passing in zinc at Paris; the general quotation has been 29*l.* per ton. In Germany zinc quotations have generally exhibited a slightly downward tendency; at Breslau, however, prices have shown little change.

Metallurgical affairs are in a stagnant condition in France, orders coming forward very sluggishly. Notwithstanding this, however, prices are very firmly maintained, producers refusing all orders below current quotations—quotations which at the present prices of coal and labour yield only a moderate profit. In the Champagne group charcoal-made pig is realising 7*l.* to 7*l.* 4s. per ton, while coke-made pig brings 5*l.* 16s. to 6*l.* per ton. Merchants' iron (first class) is selling at 12*l.* to 12*l.* 8s. per ton at St. Dizier, as well as in the Nord. In the Meurthe-et-Moselle district refining pig is offered at 5*l.* 12s. per ton. A new rolling-mill for fine plates has been established by M. Rodelet at Marpont, near Jeumont. The industrials of France and Belgium are awaiting with lively interest a policy, attributed to Prince Bismarck, of establishing free trade as regards the admission of foreign iron and pig into Germany. The German forgemasters are said to be putting forth all their efforts to prevent a sudden suppression of protective duties. The Creusot Ironworks Company (MM. Schneider and Co.) has been paying during the last few days the balance of its dividend for 1872, or 1*l.* 4s. per share.

The condition of the Belgian iron trade does not, unfortunately, become better. There are scarcely any new orders, and but little revival has occurred in articles of current consumption. Approaching adjudications of contracts for plant and *matériel* for the State lines are accordingly awaited with some eagerness. The contract for rails is the most important, but it may be interesting to note that the administration of the Belgian State lines is also about to give out orders for 30 tenders and 50 locomotives; of these 40 will be goods engines of the largest dimensions, made for ascending inclines. It is stated that the administration of the Belgian State lines is desirous that only Belgian industrials should profit from these locomotive contracts. The monster engines, the construction of which is contemplated by the managers of the Belgian State Railways, must occasion considerable injury to the most solidly constructed permanent way. A single train drawn by one of these monsters must do more injury to the permanent way than 100 ordinary trains. Prices present little change in the Belgian iron trade; as regards merchants' iron, transactions are very limited and few in number, quotations ranging between 11*l.* 4s. and 12*l.* per ton for No. 1. At the very gates of Charleroi five furnaces are about, it is said, to be put out of blast, and at Liége several rolling-mills have nearly, if not entirely, suspended their operations. Casting pig is almost as much neglected at Liége as at Charleroi; plates are also heavy at Liége, at about 16*l.* per ton. The imports of iron of all kinds into Belgium in the first four months of this year amounted to 78,260 tons, or 31,000 tons more than in the corresponding period of 1872. In April this year the imports were double those of April, 1872. The most notable augmentation occurred in the imports of rails from England, which increased in the first four months of this year to the extent of 8000 tons, as compared with the corresponding period of 1872. If the imports increase, the exports diminish; thus the exports of iron from Belgium in the first four months of 1872 were 91,000 tons, while in the corresponding period of 1871 they were only 83,000 tons. The exports to England declined to the extent of 3000 tons; those to France to the extent of 2000 tons; and those to the United States to the extent of 9000 tons. The Sambre and Meuse Mines and Ironworks Company commenced the payment, on Tuesday, of a dividend of 12s. per share for 1872.

There is little change to note in the price of coal at Paris, but a critical moment appears to be approaching when a rise or a fall will be witnessed in quotations. Supplies continue abundant, and stocks are increasing instead of diminishing. This does not hold true, however, of household qualities; these have come to hand to a smaller extent, deliveries having probably been previously overdone. In the Nord prices have been firmly maintained, but transactions show some weakness, and no important transactions have been concluded. Offers of English coal have been made at 1*l.* per ton, delivered at Dunkerque. A strike which has taken place among the coalowners of the St. Etienne basin has nearly, if not wholly, terminated. The Firminy Mines Company has conceded a small advance in wages, on condition that work should be resumed without delay, and many of the workpeople have accepted these overtures. More and more applications for concessions of mines are being made in France.

The state of the Belgian coal trade continues much the same; consumers buy only the quantities which they indispensably require. Coke displays more and more a downward tendency; this will astonish no one. The imports of coal into Belgium in the first four months of this year have been officially returned at 166,000 tons, as compared with 68,000 tons in the corresponding period of 1872 The Zollverein figures in this year's total for 58,000 tons, and Holland for 26,000 tons. The exports of coal from Belgium declined in the first four months of this year to 1,372,000 tons, as compared with 1,460,000 tons in the corresponding period of 1872. The greatest diminution in the exports occurred as regards the Low Countries, to which only 45,000 tons were forwarded, as compared with 97,000 tons in the corresponding period of 1872. The exports to France and the Zollverein have also fallen off this year. It would be difficult to deduce from these totals any good arguments in favour of

an advance. Contracts have been let this week at Charleroi, Saint-Ghislain, La Louvière, and Liége for coal required for the Belgian State Railways. Representatives of Belgian colliery associations have just held a general meeting at Brussels. Among the subjects discussed were the desirability of giving publicity to railway traffic orders of general interest, certain new circulars issued by the Administration of Mines, proposed modifications in specifications relating to contracts for coal, and regulations relating to the responsibility of railway companies in regard to their traffic. The Réunion Colliery, at Mont-sur-Marchienne, is stated to have been sold for 120,000*l.* to the General Company for Promoting the National Industry of Belgium. Advices from Charleroi state that stocks are increasing in that basin, notwithstanding the understanding at which colliery proprietors have arrived to reduce the production to the lowest possible limits for the present, and to apply their energies to the execution of sundry preparatory works of more or less importance, so that they may be able to produce considerable quantities of coal on the approach of the winter of 1873-4. It is calculated that, in spite of the policy adopted by Belgian colliery proprietors, at least one-fifth of the current production of the Belgian collieries is going into stock, and it could not well be otherwise, since Belgian metallurgy is every day diminishing the number of its puddling furnaces, while the glassworks are suffering greatly, and nearly all Belgian industries are passing through a depression which is becoming more and more marked. It is an undeniable fact that the consumption of coal is not so important now in Belgium as it was at the corresponding period of 1872; and it is very strange that industrials should now have to pay double the rates payable last year, since almost all the collieries have now coal to sell, while in the summer of 1872 they were pretty nearly all sold out. The stocks of coal existing at Charleroi on the 21st ult. were calculated at 244,000 tons. A fall has occurred in freights by water from Charleroi to Paris; the number of disposable boats is increasing in consequence of the diminution in the number of cargoes which have to be delivered, and the reduction in freights is a conclusive proof that there are more boats than voyages at present. The house of Dehaynin Père, of Paris, is stated to have concluded a contract for the delivery of 15,000 tons of Newcastle coal; the contract price is not stated, but it is believed that the negociation has been carried through at lower rates than those previously current. The Eastern of France Railway Company has just purchased 25,000 tons of English coal at the same price as that on which the Northern of France purchased last week 20,000 tons—at 17*s.* 6*d.* per ton, delivered on trucks at Dunkerque, Calais, or Boulogne, with payment of duties on coal entering France. Offers of much more important quantities of English coal are stated to have been made upon the French coast, English coalowners anticipating, apparently, a period of lower prices. The Northern of France, the Eastern of France, and the Paris, Lyons, and Mediterranean Railway Companies are taking at present 1200 tons less coal per day in Belgium than at this season last year; they have been able to procure this quantity of coal in England and Germany, and at 5*s.* 6*d.* to 6*s.* 6*d.* per ton less money.

FOREIGN MINES.

ST. JOHN DEL REY.—The directors have received the following report, per Liffey, dated Morro Velho, June 1:—Sinking in vertical shafts, May: Shaft A, 4 fms. 4 ft. 8 in.: total depth, 161 fms. 5 ft. 6 in. Shaft B, 4 fms. 5 ft. 7 in.: total depth, 161 fms. 0 ft. 5 in. Total depth, 9 fms. 4 ft. 3 in.

DON PEDRO.—Produce: We[illegible]ned to date, 2679 oits.; estimate for month, 4000 oits.—Mine captain's letter, dated May 28: General Remarks: The samples during the month have been much the same as were taken in February, and better in quality than those obtained in March and April. The ore returned has again been derived from No. 8 shoot and No. 4 gully, the stopes over Bryant's having been abandoned. All works in hand have been continued satisfactorily. Vivian's shaft has been divided down to the 30 fm. level cross-cut, and the men are now engaged clearing the bottom of the incline for drainage to resume sinking operations. The water has been kept out from the bottom of the mine sufficiently for the last fortnight, and the 30 fm. level cross-cut pushed forward vigorously.—Stopes: Stoping No. 8 shoot has been continued us usual without any particular change in its auriferous quality. A large amount of the mineral returned has been taken from No. 4 gully, and the samples, although fluctuating, are, on the whole, fair.—Prospective Work: The permanent incline has been continued without change. A rise for the capstan shaft has been commenced at the head of the permanent incline. In the 30 fm. level cross cut the ground has been latterly soft, but fair progress is being made; occasional samples are still being found.—Explorations: A level is commenced from surface for further exploring west of No. 4 gully; otherwise nothing new has happened.

SAN PEDRO.—R. M. Kitto, May 14: The following is my report of this and adjoining mines:—New Shaft: We are engaged here in cutting ground (hitches) for the dividings for the skip-road from the 135 to the bottom of the shaft. In the 150 cross-cut driving south-west to intersect the Manto San Pedro, by four men, at 830 per metre, the ground is still very hard, but yesterday we met with a joint, or head, which gives me to hope the ground is changing a little for the better: the stratum is a beautiful granite, highly mineralised; there is no sign of water yet. The 135 cross-cut, south of west, is suspended. The stope in the back of the 135 is also suspended, as it has become poor; this ground would pay to take away by machinery, but under present circumstances it is better left standing. A stope in the back of the 128, south part of manto, has improved in quality, and will now produce 4 tons of 20 per cent. ore per fm. A stope in the back of this same level, west part of manto, is without change, 3 tons of 16 per cent. ore per fm. A stope in back of same level, east part of manto, will produce 2 tons of 20 per cent. ore per fathom. A stope in the back of the 122, south part of manto, will produce 2 tons of 20 per cent. ore per fathom. The 122 fathom level, driving south of west from south part of manto, will produce at present 3 tons of 15 per cent. ore per fathom.

Santa Helena: We have two men employed here at one-half tribute.—Cuba: A chiflon sinking from surface by one man is producing good stones of ore; the manto is very large, and likely to improve in depth.—San Antonio: In the past week we had one man working here to keep the sett good according to the laws of this country. I beg to state now that the San Pedro Mine is secure by having been filled up nearly as high as the 122. I have reduced the number of workpeople from about 100 to 50, which will greatly ease the cost. All our energies are directed to cutting the manto at the 150; in fact, we cannot do anything more until the machinery is erected, when I hope to be able to extract about 500 tons of good quality ores per month.—[The Thos. Blythe, containing the machinery, arrived at Valparaiso on May 15.]

GENERAL BRAZILIAN.—T. Treloar, May 26: Mine: To date we have not struck gold. At St. Anna, however, we may come upon it from one day to another, or we may have to explore some time yet for it; but at Itabira we have no chance now of immediate success—indeed, at the latter place the precious metal may not be reached so as to be available whilst I am here. Circumstances have operated not a little against me. On arrival I found much more work to be done than I expected, and now I find more work to be done to reach gold than could have been foreseen, and under these circumstances if I continue full operations both at St. Anna and Itabira, I incur the risk of exhausting our means before any one group of shoots is explored; this being the case I have resolved to reduce cost, husband resources, and concentrate force upon St. Anna: if all the force be not required at the latter, the surplus will be employed at Itabira, and immediately gold is found at St. Anna, Itabira will be resumed with renewed vigour. At St. Anna our explorations are now abreast of the reputed rich shoots, and close to the spot where Mr. Kitto took a promising sample, and reported discovery of a line. The hard ironstone rock seems to be heading us, and, as I mentioned in a previous letter, whether it means weal or woe to the shoots of gold no one knows; samples since my last have been poor. The rock has greatly disturbed the usual order of the lode; indeed, it may have split the latter, and the main body of it may be under said rock; that above, besides dipping easterly, as usual, rides the rock in a highly anticlinal position. The most auriferous portion of the ore raised has been passed through the stamps, but so far it is very poor; in fact, so poor, that but for the advisability of streak on sampling, it would be thrown aside.—Itabira: Next post I hope to send sketch. When first maps were made the dip of the shoots, according to information from Brazilians and what could be seen at outcrop, was about 21°, but, by the additional light now afforded, it is greater. We have, as already advised, to cross cut west, instead of east, from adit to intersect the group of shoots south of Moore's shaft, and we are cross-cutting west accordingly; but of this more when I forward sketch. Souza's shaft is being examined. We have opened a few fathoms on the auriferous bed intersected in the shallow adit, and some days the samples have been promising, other days poor; but this bed can have no reference to the main one at Itabira.

ROSSA GRANDE.—Extract from letter dated May 28: I have no change of importance to communicate in regard to the mine department by this opportunity. The lode in the respective points referred to in my last continues to open out about the size then mentioned, all details of which will be sent forward in my next monthly report.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka:—"Hall, London.—Week's run, 847,000.—PROBERT."

ALMADA AND TIRITO.—The following telegram has been received by the directors of the above company from Mr. Clemes:—"May, profit for month, $9515." Equal to 1706*l.* sterling. Profit for month, after deducting London expenses, 1577*l.*

FRONTINO AND BOLIVIA.—June 30: The directors have advices under date May 12, accompanied by the usual accounts, and a remittance of gold valued at 810*l.* 13*s.* 6*d.*, the produce of the mines for the month ending April 20. The following are the accounts for the month:—Cost: At Frontino and Bolivia Mines, and expenses in London and Medellin, 1071*l.* 14*s.* 6*d.*—Produce: 359½ ozs., from 1565 tons of mineral (average yield per ton 4 dwts. 15 grs.), 810*l.* 13*s.* 6*d.*: loss, 261*l.* 1*s.* By the reports from the agents of the mines it appears that at Bolivia it has been necessary to repair the mill No. 2, at the Silencio Mine, and that the gold is on that account, and from the continuance of the dry season, smaller than it would otherise have been. Messrs. Restrepo state that the rains had commenced some four or five days before they wrote. The report from the Frontino agent states that the character of all the lodes on that property has been that they vary considerably in richness, and on that account it has been found necessary to drive the levels well ahead of the stopes, so as to leave a large amount of backs. Messrs. Restrepo speak very hopefully of the company's mines, especially of the Bolivia property, which they think capable of considerable development; and as regards Frontino, they propose to send Mr. White there again as soon as he returns to Medellin from the part of the country which he is now visiting.

EXCHEQUER (Gold and Silver).—Lewis Chalmers, June 9: I am happy to say that the carpenter work of the quartz mill is at last finished, except turning off the pullies, which cannot be done until the engineer gets steam on, but when that will be I really do not know. He has taken so much more time than I estimated that I am afraid to name a day. Retort finished. I have five carpenters working on the turbine wheel-frame and penstock, which are well on to completion. The flume requires overhauling, which will be done this week. I have hauled 34 tons of ore to the mill, engaged millman, who engages his own assistants, and hope to start crushing next Monday, but this depends on engineer Harbord. Sinking goes on very slowly. We are only now at the 84.

— June 11: Had the boiler examined yesterday, and was compelled to take it down and re-build brickwork—another delay. I think I may be able to start quartz mill on Monday.

I. X. L. (Gold and Silver).—Lewis Chalmers, June 9: We are still 10 ft. from the 200 ft. level, counting the 98 as 100; but as I shall make this level 102 to compensate for the 2 ft. short on the first 100 we have 21 ft. to sink, and 2 or 3 ft. for a sump. The dumps are full of ore waiting mill.

BUNKER HILL (California).—W. L. Palmer, June 10: Mine still improves in quantity and quality of its ores; the large body of rich ore in the 70 we are keeping as reserve, as it is abundant and accessible through the tunnel without use of the engine. The 170 is the one from which we are obtaining most of our ore; at present it is abundant, and most of it of very high grade. Here is where the rich rock is taken from which yielded 114·59 by the tests made by the "Keystone" for us. The 270 we are pushing on, and the vein is wide and rich; we are stoping out some handsome ore from this level now. Mill shows an improvement of 50 cents per ton over previous runs since my last.

CRESCENT (Gold).—Capt. Stetson, May 31: I am not able to give any very encouraging news from this end. The machinery is all in good order now, and I crushed 120 tons of ore last week; but, judging from the amalgam, it will pay only about 8*l.* per ton, so shall not crush any more of that kind. I have prospected the fourth level pretty well; found plenty of quartz, but vrry little gold. I am now working in the following places:—I am rising on ledge that was cut in the cross-cut of the second level; the lode is 4 ft. thick where cut, and prospects about $2 per ton. Am running drift to cut the ledge I cut in running drain tunnel, and am in 60 ft. Am running the cross-cut of the first level from the Pet (western end) to cut the Horse Shoe, and from that point will cut it 80 ft. west of any workings on that lode. I am also ruaning drifts north and south from prospecting shaft; am in 80 ft. each way; the rock is soft, but I have met with no lode yet, but have cut several small stringers of quartz; shall continue the drifts 100 ft. each way, and then, if I find no ledge, shall stop further work there."

MALABAR (Gold Washing).—The directors have advice of the arrival of their general agent and Californian mining staff at Lavanilla. They were expected to reach the mine about June 7. Mr. Welton, the temporary agent of the company, writes, under date May 15, that he had explored and levelled the ditch, and would engage to bring 8000 inches of water upon the mine even in the present dry season.

RICA (Gold Washing).—The directors have advices from their superintendent (Mr. C. R. Clarke), dated May 18, of which the following is an extract:—"Since I wrote you last I have spent most of my time at La Rica, and on the April 20 put water through the machine for the first time. We have been fortunate in striking a ledge of decomposed granite, which is very soft, and runs through the bed rock, directly under the gravel, so that we can go as deep as we want to, and do it all with the water if we have no unexpected trouble. I think we shall reach the main bank by July 1, or sooner; during that time we shall have to put down a 200-ft. sluice. If we only find rich gravel in the bottom La Rica will make a very fine mine to work, it is so well situated."

MALPASO (Gold Washing).—The directors have advices from their superintendent, Mr. C. R. Clarke, dated May 18, accompanied by a remittance of 90 ozs. gold, valued at $1755·10, of which the following is an extract:—"Since I wrote you last I have spent most of my time at La Rica, which mine I now have running. I cleaned up at Malpaso on the 15th inst., the result of which I send you by this mail. The mine still continues to improve, this run being by far the best yet made, taking all things into consideration. We have had an extremely long dry spell, and our water has hardly exceeded a half a head during the whole run: lately we have had showers, and if we should get a spell of wet weather during this next run I am in hopes to make a much better showing next clean up. The rich layer of gravel which I have described in other letters is now looking very well; it runs from 2 ft. on the east to 8 ft. on the west in thickness; above it is another layer that contains gold, but not so rich; on top of that lies the old waste. The hard gravel below continues, but is changing considerably in its appearance; it is now considerably mixed with blue gravel, which is much coarser, and contains a little gold. The shaft we got down 26 ft., and had to stop on account of water, but as soon as I can get a pump I shall continue it. I think we shall reach the bed rock in a few feet further; when we stopped we had 9 ft. of rich gravel in the bottom. Since writing you last we have put down 120 ft. sluice—80 at the foot and 40 at the head. I have not started our house yet, but will soon. Had no trouble on ditch lately; Messrs. Welton and Fowles have had ground examined, and find it is perfectly practicable to bring water from the Medina river, which affords enough to open eight or ten mines in good shape."

UNITED MEXICAN.—Edward Hay, Guanaxuato, May 28: Mine of Jesus Maria y Jose: The buscone extraction is low, owing to a less number of men being at work. The yield from the lower workings carried on on hacienda account has improved a little, but the ore is poor, and requires extra dressing to bring it up to a profitable ley. Of the workings in the Las Locos ground, two are yielding pretty good ore.—New Concern: Adit of San Cayetano and Mine of Buenos Ayres: The appearance of the end, west of the adit in the Buenos Ayres ground, is the same as reported in my last. Since then we have traversed several relices (walls of the lode), and higuelas (strips of quartz), and some narrow hollows, from which a little water is set free. The direction is now north 60° west, until we get to the original bearing of north 85° west. As the end of the cross cut to the north has not improved, I have resolved to stop this working, and reduce the expenses to those incurred in the advance of the adit.

HORNACHOS (Spain).—John Hancock, jun., June 18: Descuidada: In the past week we have cleared up and cut down the engine-shaft 9 ft.; we have 4 ft. more to get to the bottom, which will take us two or three days. There are 24 men engaged in the two shafts, and I am pleased to say that both the English and Spaniards are working well, and doing all they can to push on the work. The machinery is working well.—Afortunada: No lode has been taken down in the shaft since my last report. We have put in some timber and secured the bad ground in the new shaft, which I thought we should have to wall up before sinking any deeper. I hope to be able to put this shaft to the bottom of the old workings without any more hindrances.—Pureza de Luisa: The lode is looking a little better, and is letting out more water; this I am glad to see, as it shows the lode is more open than it has been in the last 6 ft. sunk through.

BENSBERG.—J. W. Hoffman, June 21: This week we made some important steps forward. The steam engine has been running, the water-pipes from the new pump to the cistern connected, the water turned on to the dressing machinery, and this set agoing. The dry weather has made the cistern, which is of wood, and the wooden parts of the machinery very leaky, so that a few days will elapse before all is water tight enough to commence dressing. In the meantime we shall keep the water running through, and run the machinery empty. Everything works well so far. We have also now got the old pump down the shaft, and finished connecting the delivery pipes to-day. On Monday we shall connect the steam with this pump, and work both pumps until we have the mine dry again, after which I think we shall be able to keep the water down with only one pump. We expect to recommence sinking in about a week's time. In the open-cast we have continued as last week, getting wash ore and clearing fresh ground. In the latter operation we have got into carbonate about 8 ft. from surface, therefore of a poor class, assaying 25 per cent. of metal; this will improve as we go deeper. The ore crusher has arrived in Cologne. Production of ore for the week—Carbonate none; rock ore, 25 tons, of 10 per cent. assay; deliveries, none.

— J. W. Hoffman, June 23: The water in the open-cast has so far gone that we can continue getting carbonate on the level where we left off after the accident with the pump. Our delivery this month will be 50 tons. We have been running the dressing machinery this week, and dressing ore to form the beds of the jiggers-sieves. Several of the pulleys had to be altered, some going too quick, others too slow. The water cistern still leakes, and will be lined with zinc on Monday. We recommence sinking on the first of July. Production of ore for the week:—Carbonate, 40 tons of 38 per cent. assay; rock ore, 35 tons of 10 per cent. assay. Delivered 40 tons of 38 per cent. assay.

WEST CANADA.—June 4: Huron Copper Bay: The stope in the back of the 60, east of Bray's shaft, will yield 2 tons of ore per fathom, and the stope in the bottom of the 35, east of the same, 2½ tons per fathom. We have a stope in the bottom of the 35, west of Palmer's shaft, yielding 4½ tons of ore per fathom.

LANISTOSA.—June: Santa Lucia: The stope in back of west level at incline is suspended for the time, being almost too poor to pay for working.—Asuncion: In exploratory shaft there is a good lode holding down; the sinking is being pushed to prove the depth of the ore quickly, in order that a more convenient shaft may be started, if necessary, as the present one (being a small trial only) has followed the lode, which is here very warped and crooked, and thus hauling the stuff is rendered very difficult; it yields ½ ton of lead ore and 3 tons of calamine per fathom.—Glanrafon: The deep adit cross-cut continues without change; the lode must have gone down very straight or perpendicular, seeing that we have not met with it yet.—Aurora: Zalacain's pitch has been put in working order, but frequent rains still prevent steady working; the lode yields ½ ton of lead ore and ½ ton of calamine per fathom.—La Flora: Towards the end of last month the stope in the deep adit has slightly improved, and the little lead discovered continues, but does not appear likely to hold on.—La Berta: The ground in Gwillermo shaft is improving in character, and at present there is a branch of fluor-spar in bottom 6 in. wide, carrying good stones of lead. This appears to widen as it goes down. In the shallow adit passing through a hard bar of dark limestone; we hope to cut through it into one of the eastern lodes shortly.

ALAMILLOS.—June 18: The lode in the 60 fm. level, west of San Rafael shaft, is large, yielding stones of lead. In the 50, west of San Francisco shaft, the lode continues regular, containing a little lead, but not enough to value. In the 50, east of Magdalena shaft, the lode is small and poor. The lode in the 85, east of Taylor's engine shaft, is very wet, which makes it troublesome for driving through. In the the 85, west of Taylor's engine shaft, the lode is large and open, yielding ½ ton of ore per fathom. The 50, west of San Yago shaft, is going through a splendid shoot of ore, yielding 4 tons of ore per fathom. The 50, east of San Victor's shaft, has passed through a strong cross-course, and has met with a lode containing stones of ore. The 50, west of San Victor's cross-cut, is improving in size; the lode produces ½ ton of ore per fathom. In the 20, west of Addis's cross-cut, south lode, the men are cutting in south, to prove another part of the lode. The lode in the 20, west of Addis's cross-cut, middle lode, is compact and regular, worth ¼ ton per fathom, and is opening out stoping ground. In the 30, east of air-shaft, the lode has failed within the last few days, now yielding 1 ton of ore per fathom. The lode in the 30, west of air shaft, is split into branches, producing ½ ton of ore per fathom. In the 40, east of air shaft, the lode is small and poor, and the ground is hard for driving through. The lode in the 50, east of Judd's engine-shaft, contains a small branch of lead, but not enough to value. The 50 cross-cut, south of Judd's engine-shaft, is going to meet the level coming east from Crosby's cross-cut; it is in very hard ground. The lode in the 50, east of Crosby's shaft, produces stones of lead. In the 50, east of Crosby's shaft, the ground is very hard for driving through. The lode in the 50, west of Crossby's cross-cut, produces occasional stones of lead. In the 30, east of Swaffield's shaft, the lode has again improved, and is opening out a rich piece of tribute ground worth 2 tons per fathom. The lode is small in the 40, west of Morris's shaft, and is spotted with lead.—Shafts and Winzes: Very fair progress is being made in sinking of Judd's engine-shaft below the 50. In Diego's winze, sinking below the 40, the lode is compact and firm, yielding ¼ ton of ore per fathom, and the ground very hard. The lode in Enrique's winze, below the 20, is very changeable, producing ¼ ton of ore per fathom.

FORTUNA.—June 18: Canada Incosa: We have opened on the south part of the lode in the 110 fm. level, west of Henty's shaft, which is of a promising appearance, and lets out water, yielding ½ ton of ore per fathom. The lode in the 100 fm. level, west of Judd's shaft, is improving in size and value, worth 1½ tons of ore per fathom, and moderately easy for driving. The sinking of the 80 fm. level, east of Henty's cross cut, is resumed, and the lode is small and poor. The lode in the 50 fm. level, west of San Pedro shaft, is strong and well defined, but does not contain lead enough to value. The lode in the 60 fm. level, west of San Pedro shaft, is large and regular, and easy for driving, yielding 1 ton of ore per fathom. The 60 fm. level, east of San Pedro shaft, is passing through a good length of ground, worth 2 tons of ore per fathom. The lode in the 50 fm. level, east of San Pedro shaft, is irregular and unproductive. The 90 fm. level, east of [illegible] is passing through a bar of disordered ground. The lode is small and poor in the 80 fm. level, west of Kennedy's. The lode in the 90 fm. level, west of Lowndes's yields stones of ore, but not enough to value. In the 90 fm. level, east of Lowndes's shaft, the lode is disarranged, and unproductive at present. The 80 fm. level of Caro's shaft, is split into small branches, and is very hard for driving.—Shafts and Winzes: The men are getting on well with the sinking of San Frederico's shaft below the 140 fm. level. The lode in Rafael's winze, sinking below the 80 fm. level, is small, and less regular than it was, yielding ¼ ton of ore per fathom. Below the winze, below the 70 fm. level, has diminished in value in the past week, yielding 1 ton of ore per fathom.—Los Solidos Mine: The lode in the 120 fm. level, west of Morris's engine-shaft, is small, and the ground hard. In the 110 fm. level, west of Buenos Amigos shaft, the lode is regular and compact, and opening fairly in the cross-cut ground, worth 1 ton of ore per fathom. The lode in the 100 fm. level, west of San Carlos shaft, is split into small and unproductive branches. In the 90 fm. level, west of San Carlos shaft, the lode is small and regular. The lode in the 90 fm. level, east of Morris's engine shaft, is large, of a better appearance than it was, and contains some stones of ore. In the 110 fm. level, east of Morris's engine-shaft, the lode has much increased in size, consisting of gossan, quartz, and lead ore, yielding ½ ton per fathom. The lode in the 100 fm. level, east of San Miguel shaft, continues very regular, yielding 2 tons of ore per fathom. In the 90 fm. level, east of San Miguel shaft, the granite is very hard for driving, and the lode very small. The lode in the 35 fathom level, west of Palgrave's shaft, is of very promising appearance, yielding 1½ ton of ore per fathom. The 45 fm. level, east of Palgrave's shaft, is passing through a very fine shoot of ore, worth 2 tons per fathom. The 35 fm. level, east of Palgrave's shaft, has fallen off in value during the past few days, yielding ½ ton of ore per fathom.—Shafts and Winzes: San Miguel shaft, below the 90 fm. level, is off the lode, and very hard for sinking. The miners are making good progress in the sinking of Cox's shaft below the 100 fm. level. The raising of ore were well maintained in the past month, and the mines continue to yield the usual quantity of mineral. The works at surface are proceeding very regularly, and the machinery is in good condition. We estimate the sales for June at 350 tons.

LINARES.—Pozo Ancho, June 17: The lode in the 85, west of Cross-by's shaft, is large and strong, but unproductive. In the 75, west of Cox's shaft, the lode is small and poor, and the ground hard for driving. The lode in the 75, east of San Francisco shaft, is opening up good tribute ground, yielding 1½ tons per fathom. The lode in the 75 is very regular, and yields good stones worth 1 ton per fathom. The lode in the 65, west of San Francisco shaft, is small, consisting of quartz and lead ore, yielding ½ ton of ore per fathom. In the 65, west of San Francisco shaft, the lode has improved a little during the past month, now producing ½ ton of ore per fathom. The lode in the 55, east of San Francisco shaft, is of a promising appearance, consisting of carbonate of lime and lead ore, yielding of the latter 1 ton per fathom. The lode is small and poor in the 65, east of San Francisco shaft.—Los Quinientos: The lode in the 65, west of Taylor's engine-shaft, is small, and of no value. In the 65, east of Taylor's engine-shaft, the ground is hard for driving through, and the lode unproductive. The lode continues regular in the 55, east of Taylor's engine shaft, but of no value. The lode in the 55, west of Cox's shaft, is large, consisting chiefly of quartz and lead ore, yielding ¼ ton of the latter per fathom. The lode in the 45, east of Addis's shaft, is strong, open one, and has a kindly appearance, yielding ½ ton of ore per fathom. The 45, west of Henty's shaft, is passing through the cross course. The lode in the 45, east of Henty's shaft, during the past week. The 45, west of San Carlos shaft, is communicated with the last-named end. The lode in the 55, west of San Carlos shaft, is large and strong, yielding fine stones of ore, worth ½ ton per fathom. In the 55, east of San Carlos shaft, the lode is large, composed of calcareous and lead ore, yielding of the latter 2½ tons per fathom. The 45, east of Judd's shaft, continues hard and poor, but is letting out water more freely. The lode in the 32, east of Judd's shaft, is split into two branches, both of which are producing lead, worth ½ ton of ore per fathom.—Shafts and Winzes: Good progress is being made in the sinking of Taylor's engine-shaft below the 65. San Carlos shaft, sinking below the 55, is very hard, and spare for sinking. We expect to hole the shaft, below the 45, this month. The lode in Rogelio's shaft, below the 45, is yielding good stones of ore. The ground is hard, and the lode of no value. Barca's winze, below the 55.

[For remainder of Foreign Mines, see to-day's Journal.]

THE MINERAL HILL SILVER MINES COMPANY.

Mr. WM. TURQUAND, the Official Liquidator, has just issued the following circular to the Debenture Holders of the Mineral Hill Silver Mines Company (Limited):—

"I beg to enclose a form which I shall feel obliged by your filling up with particulars of the debentures held by you, and signing and returning the same to me on or before the 30th instant, as it is necessary that I should have a formal verification of your claim, in order that the same may be duly registered.

With respect to the position of affairs at the mines, as to which the debenture holders are doubtless anxious to hear, I found on my appointment that, under advice which they had received, the directors were taking steps to report on the mines, with a view of ascertaining the existence or otherwise of further deposits of ore. After giving the matter full consideration, I considered it desirable for the interests of the debenture holders that those works should be continued to an end, more especially as there were at the mines funds sufficient to cover any probable expense which it would necessary to incur in carrying them out. It is satisfactory to be able to state that the profits arising from the sales during the time, although very small, have been sufficient to defray all outgoings without encroaching on the funds referred to.

The operations cannot be finally completed for some three or four months, during which time it is to be hoped that some discovery may be made. I do not recommend a continuance of the present course, but should any debenture holder entertain a different opinion I am quite open to receive a communication on the subject. I may mention that I have been in communication with Mr. F. Rogers, the mining engineer, who I believe was consulted by the committee of debenture holders. I have placed before him the monthly reports which have been received from the mines since my appointment; he quite concurs in the view I have taken, has embodied his opinion in a report, which is too lengthy to commence to transcribe into the debenture holders, but is open to their inspection at my offices.—WM. TURQUAND, Official Liquidator."

GOLD MINING IN COSTA RICA.—The best evidence of the unparalleled richness of the gold mines of Costa Rica is a comparison of their produce with other gold producing countries. From experiments made it has been found that the average value of 500,000 tons of Australian gold quartz was 16·7*s.*; the value of ore raised in eight counties in California from 30 mines, including only 8*s.* 20 per ton, while according to the assays made by Messrs. Jones and Matthey, the average value of the gold ores of a number of Costa Rica mines was 12*l.* 12*s.* per ton. The mines of Costa Rica have long been worked, and have brought large fortunes to those engaged in the pursuit. Travellers of all nations who have been through the country, report that it is eminently of a gold-bearing character, all the valleys being more or less of an auriferous nature, being formed of the detritus of the rocks containing the gold-bearing quartz.—*Cosmopolitan, Mexico.*

THE FAMOUS CARABOU SILVER MINE OF COLORADO.—[illegible] arrival from Middle Boulder, otherwise Grand Island district, brings glowing accounts of the changed condition of the famous Caribou Mine. It is improving daily, not only in the quality of its ores, but in strength of crevice. The vein is now from 5 to 7 ft. wide in the lower levels, and immense quantities of [illegible] terial are being extracted. Since the mill stopped for general repairs, some weeks since, something over 400 tons of ore have accumulated in the mine about the surface of the mine. This has been assorted into two distinct grades, the first of which is valued at $300 per ton. The second quality we have to mate for. Mr. Dawley, the superintendent of reduction, places the product of bullion during the present month at from $75,000 to $100,000. The crushing and amalgamating machinery having been refitted throughout, is now [illegible] against further serious breakages. It was started up two or three days since, rapidly reducing the crude material to fine silver.—*Central City Register.*

BINGHAM CANYON.—Things are exceedingly lively in Bingham. Nearly every day new and fine mines are struck, prospectors are jubilant, speculators cast loving glances that way. Mr. A. Patrick has a contract with parties who agree to furnish him with 40 tons of ore per day, and he has any quantity of teams running in the canyon. The Spanish Mine is shipping about 50 tons per day. They are now making a road to the Northern Light Mine, and when it is finished that mine will be able to ship 60 or 70 tons daily. Other mines are shipping large quantities. The next summer Bingham will have room for from 800 to 1000 men of the hard-fisted yeomen to develope her great mineral resources.

The NEPTUNE, which now ranks as one of the best mines in the camp, is making rapid strides towards development. This mine is under the management of Humphrey Rogers, whose experience in the mines of Lake County and this Territory will ensure its success financially. The incline is now about 90 ft., showing a vein of ore from 3 to 12 ft. in thickness, consisting of carbonates, and occasionally a streak of black sulphurets. The lowest assay has been made shows 16 ozs. in silver and 45 per cent. lead: the highest assay shows 190 ozs. silver and 65 per cent. lead. The incline following the vein running vertically into the hill, and shows ore on every side. About 1000 tons now in sight, while 48 hours' drifting would show us much more. There is [illegible] 600 tons on the dump ready for shipment. The daily raise, which comes [illegible] from the incline, is about 6 tons, which, by drifting and stoping, could be [illegible] to 10 or 12 tons. The ore nets the owners $60 on the dump. The work on the [illegible] 100 ft. in length is being pushed with vigour. It will tap the ledge at a depth of [illegible]

The UTAH (Silver-Lead) is undergoing a new deal, being [illegible] by I. C. Bateman, a fellow townsman. He demonstrates that it is more profitable to sell the ores than to reduce them at the company's furnaces; also that the bug-a-boo of wise experts and poor miners—the pyrites of iron in the lower part of the mines in this camp—is nothing but a myth. The shaft sunk in the property of this mine has not only passed through it, but is now about 60 feet into a body of galena, all traces of pyrites disappearing at the bottom of the shaft.

LAST CHANCE.—One of the English dividend paying mines is [illegible] a rushing business, and notwithstanding the bad condition of roads is shipping about 40 tons daily.—*Salt Lake Daily Herald*, June 6.

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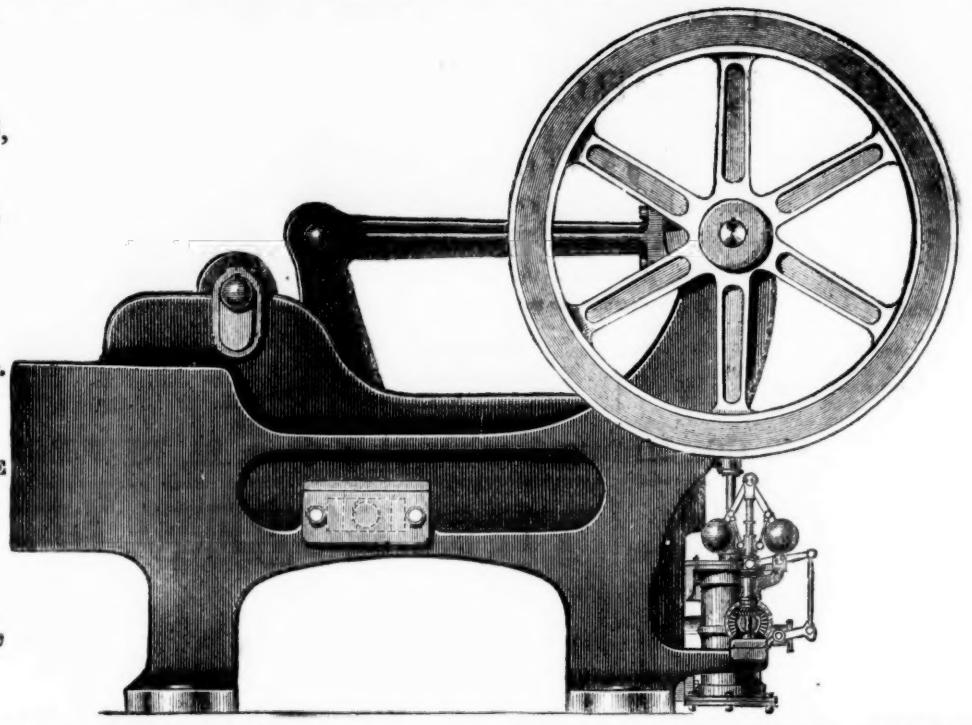

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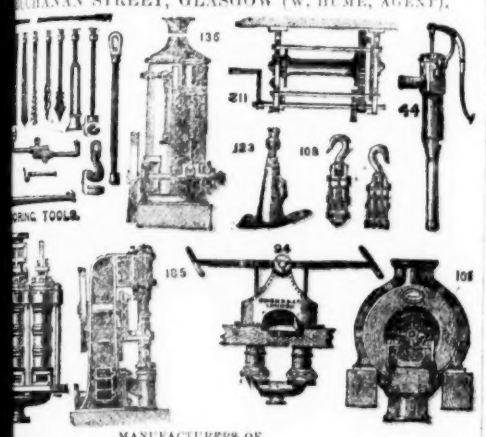

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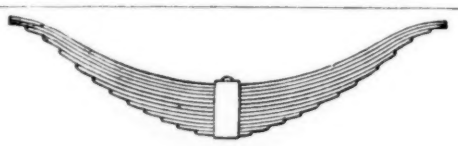

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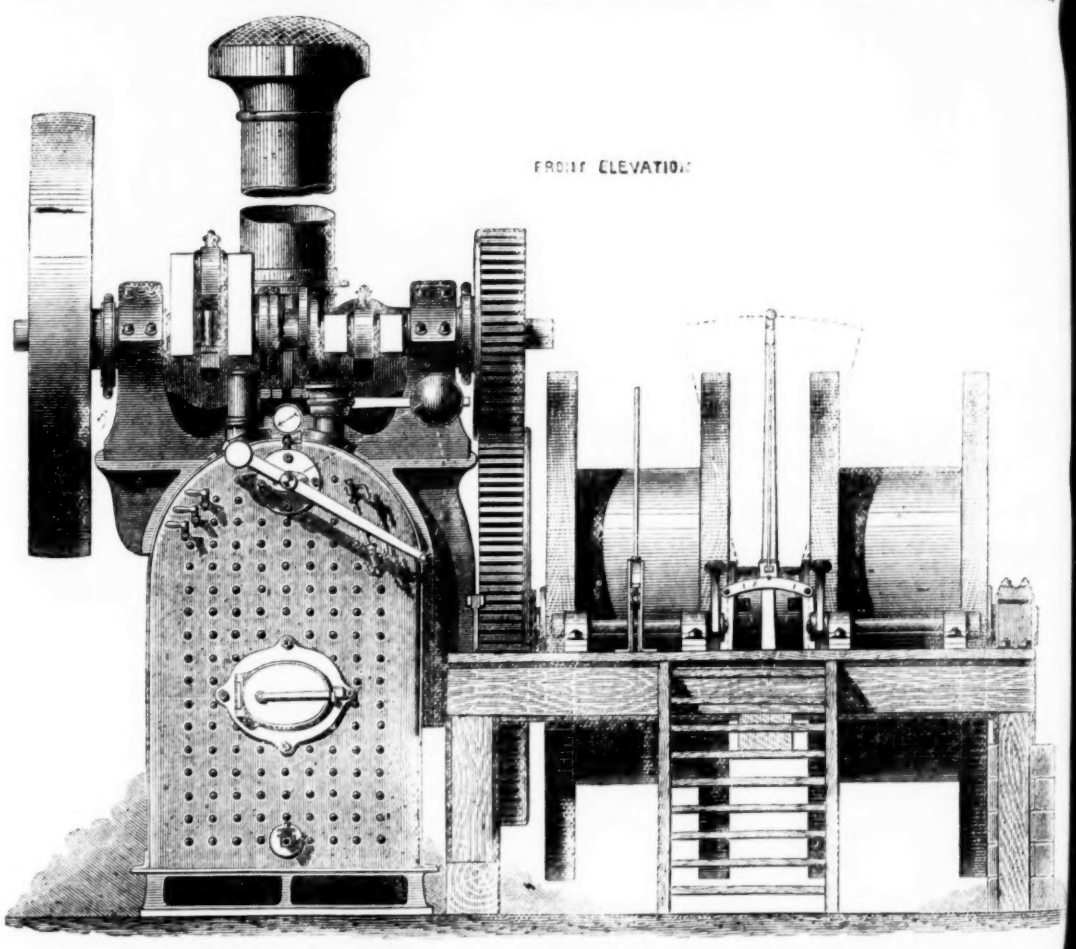

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This celebrated ROCK DRILL, which by reason of its inherent merits has superseded all other Rock Drills, is now in extensive use in America, England, Scotland, and the Continent, and is indispensable in the economic working of all Railway Cuttings, Shafts, Quarries, and Mines.

Its prominent features are:—

I.—ITS SIMPLICITY.

Any labourer can work it, and it does not get out of order. It may be worked either by air or steam power, at will, without any alteration of the mechanism.

II.—ITS DURABILITY.

No part of the mechanism is exposed; it is all enclosed within the cylinder—so there is no risk of its being broken

III.—ITS CAPABILITY.

In hard rock, like granite, gneiss, iron-quartz, the Tunnel Drill will progress at the incredible rate inches to 12 inches per minute. These machines can bore holes 1 inch up to 5 inches in diameter, and, on an average, will go ch 120 feet of rock per day—making 40 holes each from 2 to deep. The drill can be used at any angle, and in any direc- and will drill and clear itself to any depth up to 20 feet.

IV.—ITS ECONOMY.

compared with hand labour the saving in actual drilling is considerable, from the fact of the "out put" being increased old. The saving in the general expenses, and in the interest of l, will be in a like ratio.

DRILL POINTS.

saving in steel alone is incredible, ONE DRILL POINT WILL THROUGH TWENTY FEET OF ABERDEEN GRANITE HOUT SHARPENING. This fact will be duly appreciated by ctical men.

For testimonials, estimates, and other information, apply to—

T. BROWN & CO., Engineers, 96, Newgate-street, London, E.C.

WILSON, McLAY, & CO., Sole Agents, 2, Talbot-court, Gracechurch-street, London, E.C.; and 87, St. Vincent-street, Glasgow.

CRAVEN BROTHERS, Engineers (the Makers), Vauxhall Ironworks, Osborne-street, Manchester.

THE "BURLEIGH" AIR COMPRESSOR,

THOMAS BROWN,

PATENTEE & SOLE PROPRIETOR.

For driving the "Burleigh" Drill, or other Machinery.

The peculiar advantages which enhance the value of this Machine in the estimation of those who have it in practical use are—

1.—The pump pistons are driven by a steam-engine, the connection rods being attached to one crank shaft, the angles being so set that when the greatest power is developed in the steam cylinder the point of the greatest compression is being reached alternately in the air cylinders.

2.—The heat generated by compression of the air is reduced to *nil*.

3.—It is strong and durable compared with its effective power.

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ENGINEERS,
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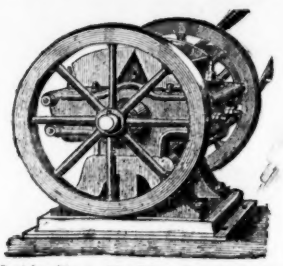

Machine No. 1—The Direct Double-Action.

IMPROVED

PATENT STONE BREAKING, QUARTZ CRUSHING, AND GRINDING MACHINERY.

Messrs. T. BROWN and Co., ENGINEERS, have much pleasure in calling attention to their IMPROVED MACHINERY for STONE BREAKING and QUARTZ CRUSHING, for crushing, grinding, or triturating Stone, Flint, Minerals, Ores, Chemicals, and other substances; for washing and separating Metals from Ores, and for extracting Gold from Quartz.

The principle of this invention is applied to machines of various construction, which contain within the range of their capability the power of reducing all hard materials to cubes of from 2½ inches to impalpable powder. The mechanical construction of each description of machine is specially adapted for its own peculiar work, and experience has shown that each is eminently suited for the work for which it is designed.

They can be driven by water, steam, or horse power; they are light and portable, and their crushing and grinding surfaces are so constructed that when worn they can easily be replaced.

If intending purchasers would send a sample of the materials required to be crushed or broken it could be operated upon in their presence, and thus they would be guided in the selection of the machine best suited for their requirements.

For prices, and all information relating thereto, please address—

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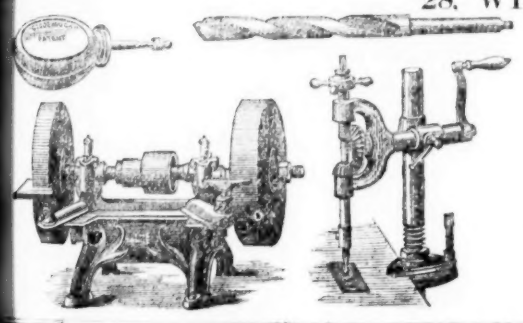
CHARLES CHURCHILL AND CO.,

IMPORTERS AND FACTORS OF AMERICAN MACHINERY AND TOOLS,

28, WILSON STREET, FINSBURY, LONDON, E.C.

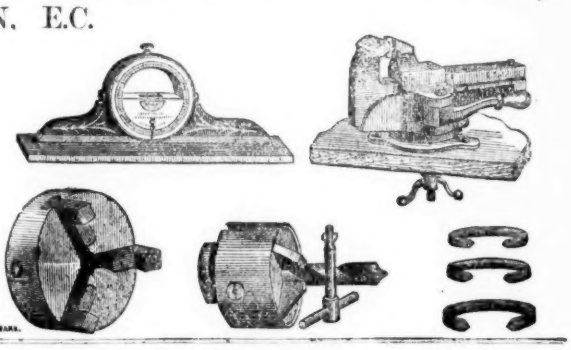


SOLE AGENTS FOR

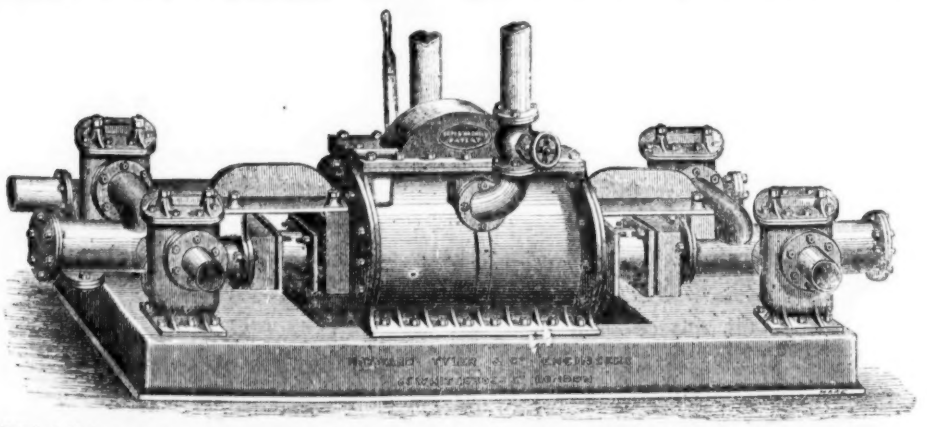
Morse's Twist Drill, and Machine Company's celebrated Twist Drills and Chucks; American Scroll Chucks; Stephens' Patent Vices; Parker's Patent Parallel and Swivel Vices Gould Manufacturing Company's Well and Cistern Pumps; Washita, Arkansas, and Hindostan Oil Stones; and all other descriptions of American Tools and Machinery, &c., &c.

C. C. and Co. are prepared to give quotations and execute indents for American Goods of all descriptions, to be shipped to any port.

CATALOGUES AND PRICES CURRENT ON APPLICATION.



HAYWARD TYLER AND CO.'S PATENT STEAM PUMPING MACHINERY.

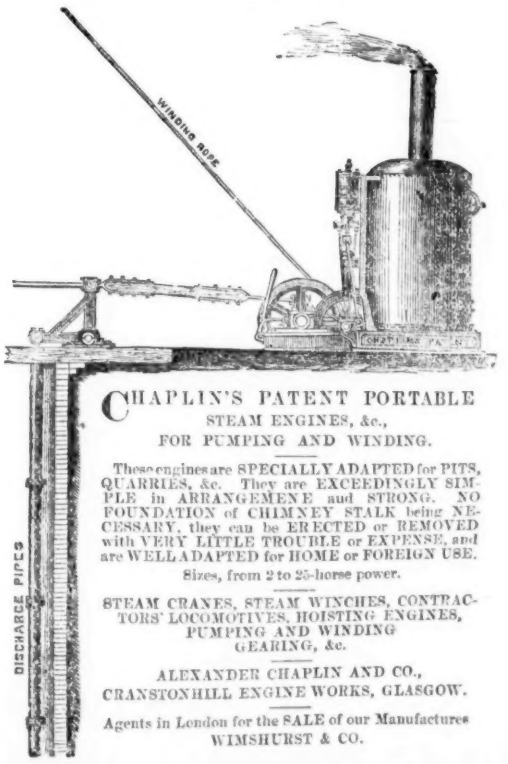


"About a year and a-half since a direct-acting pumping-engine was erected at the Trimdon Grange Colliery by Messrs. Hayward Tyler and Co., of London. The diameter of the steam-cylinder of this engine is 40 in., that of the rams 19 in., the pump-plungers having a 4-ft. stroke. The whole of the combined apparatus is carried on a solid bed-plate, and the pumps are so arranged that they can be drawn off endways, if required, a planed groove being formed in the bed-plate to keep them true. A pumping-engine of this description requires no very accurate adjustment of level, as it is self contained, and all the strains are direct from the steam-cylinder to the pumps, which at their underside are attached to the bed-plate, and are supported by a strong stay above. The engine at the Trimdon Colliery is placed in a headway cut for its reception, at a depth of 400 ft. from the surface, and a short distance from the main shaft. The pump takes its water from sump, into which the level drains. The pumping-engine continues to do its work in a satisfactory manner, and at a recent trial made by Mr. R. Forster, engineer it was found that the pump was throwing to bank, a distance of 400 ft. above itself, 245½ gallons of water per minute, the pump running at 10 strokes, thus doing 89·5 per cent. of its theoretical duty."—See *Engineering*, 3rd Jan., 1873.

Full particulars, references, testimonials, &c., post free, on application to—

HAYWARD TYLER AND CO.,
84 AND 85, UPPER WHITECROSS STREET, LONDON, E.C.

Prize Medal—International Exhibition, 1862.



CHAPLIN'S PATENT PORTABLE
STEAM ENGINES, &c.,
FOR PUMPING AND WINDING.

These engines are SPECIALLY ADAPTED for PITS, QUARRIES, &c. They are EXCEEDINGLY SIMPLE in ARRANGEMENE and STRONG. NO FOUNDATION of CHIMNEY STALK being NECESSARY, they can be ERECTED or REMOVED with VERY LITTLE TROUBLE or EXPENSE, and are WELL ADAPTED for HOME or FOREIGN USE.

Sizes, from 2 to 25-horse power.

STEAM CRANES, STEAM WINCHES, CONTRACTORS' LOCOMOTIVES, HOISTING ENGINES, PUMPING AND WINDING GEARING, &c.

ALEXANDER CHAPLIN AND CO.,
CRANSTONHILL ENGINE WORKS, GLASGOW.

Agents in London for the SALE of our Manufactures
WIMSHURST & CO.

VIENNA EXHIBITION, GROUP XIII, STAND No. 457. INTERNATIONAL EXHIBITION, LONDON, No. 2 ENGINE SHED, WEST SID

TANGYE BROTHERS AND HOLMA

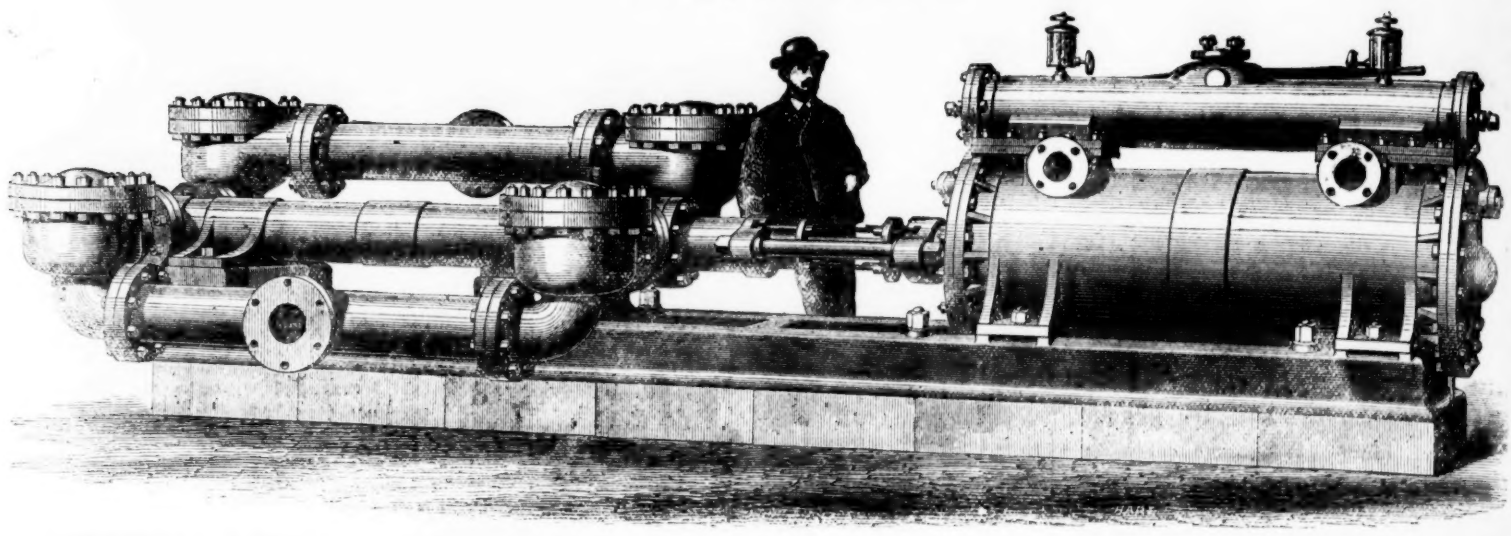
10, LAURENCE POUNTNEY LANE, LONDON,

CORNWALL WORKS (TANGYE BROTHERS), BIRMINGHAM,
NEWCASTLE-ON-TYYE (TANGYE BROTHERS AND RAKE), OFFICES AND WAREHOUSE, ST. NICHOLAS' BUILDINGS.
SOLE MAKERS OF

THE "SPECIAL" DIRECT-ACTING STEAM PUMPING ENGIN

FOR FORCING WATER FROM MINES.

Nearly 3000 in Use.



The "SPECIAL" Direct-acting Steam Pumping Engines require no costly Engine Houses or massiv foundations, no repetition of Plunger Lifts, ponderous Connecting-rods, or complication of Pitwork, an allow a clear shaft for hauling purposes.

Extract from "ENGINEERING," September 6th, 1872:—

"The accompanying engraving illustrates a large specimen of the 'Special' Steam Pump, which was brought before the public about four years since by Messrs. Tangye Brothers and Holman. The Pump is the invention of Mr. S. Cameron, of New York, and since its introduction Messrs. Tangye have turned out nearly 3000 from their works.

"These pumps are of various sizes, and at first only small ones were made, but as their usefulness became developed the manufacturers designed pumping engines on the same principle for use in collieries. They were first applied to this purpose in the Newcastle collieries about three years since, and through the efforts of the late Mr. A. Stansfield Rake, under the direction of Messrs. Tangye, about 130 of these pumps had been introduced—principally in the collieries of the Durham and Newcastle districts, up to the end of 1870. They were adapted to perform the required duty—varying in almost every case—of forcing from 1000 to 10,000 gallons per hour from depths ranging from 100 to 500 ft. The succes of this system of pumps led Mr. J. Bigland, the manager of Messrs. Pease's Bishop Auckland Collieries, to conclude that it was adapted for yet heavier work. The result of his investigations into its working led to the manufacture of the engine we have illustrated, for the Adelaide Collieries, belonging to Messrs. Pease, at Bishop Auckland.

"The construction of the Special Steam Pump is so well known that we need now do no more than refer to the dimensions of the various parts. The steam cylinder is 26 in. diameter, and the pump —which is double acting—is 6¾ in. diameter, with a 6-ft. stroke. The slide valve is steam-moved, and its alternate action is effected by means of two steel reversing valves, operated by the piston in the interior of the cylinder at either end. Hence there is no external mechanism except the piston rod, a few inches only of which is seen reciprocating between the stuffing boxes of the steam and pump cylinders. In the contract it was stipulated that the engine should raise 120 gallons per minute 1040 ft. high in a single lift, and this is more than accomplished, with apparently as much ease as if its load was delivered at only 100 ft. high.

"The engine-room at the Adelaide Collieries is situated at a depth of 1040 ft. below the surface, and is an arched chamber, about 100 ft. long by 20 ft. wide, and 10 ft. high at centre. At the far end of this chamber is a double-flued boiler, 27 ft. long and 7 ft. in diameter. Placed between the boiler and the shaft is the pumping engine we have been describing. It was started on June 6, 1871, and Mr Bigland reported that, having measured its duty, he found the average of seven trials to be 137 gallons per minute, thus giving a higher duty than was stipulated for in the contract.

"A still larger Special Steam Pump than the one already described has since been made by Messrs. Tangye for Messrs. Stannie lieries, Silverdale, Staffordshire. The steam cylinder of this is 32 in. in diameter, and the water cylinder 10½ in.; the st 6 ft., and the engine has to raise 22,500 gallons per hour 540 f Two out of eight engines for some extensive coal mines in Ge are also in a forward state; each of these engines is to be of raising 150 gallons per minute, or 9000 gallons per hour, high. This system of underground pumping engine undou carries with it the recommendations of simplicity and great with a small number of mechanical parts. Its first cost is al moderate, as compared with the method of raising water fro depths by a series of 40 or 50 fm. lifts. Its practical value tested in 1867 by the award of a silver medal by the Royal Fal Polytechnic Society, which is composed chiefly of mining en In fact, these engines appear to solve a very important com question in mining operations—viz., the most economical an tive means of deep mine drainage. Their success has bee blished in the coal mines of Durham and Newcastle, and the reason why their adoption should not follow, as occasion re in the copper and tin mines of Cornwall, some of which are depth; and especially for foreign mines, where transport c ence and economy are of paramount consideration."

The "Special" Steam Pumping Engines are in use at the following among many other Collieries:—

Adelaide Colliery, Bishop Auckland	3 Pumps.	North Bitchburn Colliery, Darlington	2 Pumps.	Stott, James and Company, Burslem	1 P
Acomb Colliery, Hexham	1 „	Newton Cap Colliery, Darlington	1 „	Straker and Love, Brancepeth Colliery	1
Blackfell Colliery, Gateshead	1 „	Normanby Mines	1 „	Seaton Delaval Coal Colliery, near Newcastle	1
Black Boy Colliery, Gateshead	1 „	Oakenshaw Colliery	1 „	Thornley Colliery, Ferryhill	2
Castle Eden Colliery	2 „	Pease's West Colliery	2 „	Thompson, John, Gateshead	2
Carr, W. C., Newcastle	4 „	Pease, J. and J. W., near Crook	5 „	Trimdon Grange Colliery	1
Etherley Colliery	1 „	Pease, J. and J., Brandon Colliery	1 „	Tudhoe Colliery	4
Gidlow, T., Wigan	3 „	Pegswood Colliery, near Morpeth	2 „	Vobster and Mells Colliery	2
Haswell, Shotton and Easington Coal Company	3 „	Pelton Fell Colliery	1 „	Widdrington Colliery, Morpeth	5
Lochgelly Iron and Coal Company	2 „	Railey Fell Colliery, Darlington	1 „	Whitworth and Spennymoor Colliery	5
Lochore and Capeldrae Cannel Coal Company	6 „	Right Hon. Earl Durham, Fence Houses	1 „	Westerton Colliery, Bishop Auckland	1
Leather, J. T., near Leeds	2 „	Skelton Mines	1 „	Wardley Colliery, Gateshead	1
Lumley Colliery, Fence Houses	1 „	South Benwell Colliery	5 „	Westminster Brymbo Coal Company	2
Monkwearmouth Colliery, Sunderland	1 „	St. Helens (Tindale) Colliery	1 „	Weardale Coal and Iron Company	5

PARTICULARS OF THE "SPECIAL" STEAM PUMPING ENGINES SUITABLE FOR HIGH LIFTS IN MINES.

Diameter of Steam Cylinder ...Inches	6	8	10	8	12	16	10	14	18	21	14	18	21	26	16	21	
Diameter of Water Cylinder ...Inches	3	3	3	4	4	4	5	5	5	5	6	6	6	6	7	7	
Length of Stroke ...Inches	24	24	36	24	36	48	24	36	36	48	36	36	48	72	36	48	
Strokes per minute ...	30	30	20	30	20	15	30	20	20	15	20	20	15	10	20	15	
Gallons per hour ...	2,200	2,200	2,200	3,300	3,300	3,300	6,100	6,100	6,100	6,100	8,800	8,800	8,800	8,800	11,000	11,000	11,0
Height in feet to which water can be raised with 40 lbs. pressure per square inch of steam at pump ...	240	425	665	240	540	960	240	470	775	1,058	320	540	740	1,140	312	540	7
Diameter of Suction and Delivery ...Inches	2	2	2	3	3	3	3½	3½	3½	3½	4	4	4	4	5	5	
Diameter of Steam Inlet ...Inches	¾	1¼	1½	1¼	2¼	2½	1½	2½	3	3½	2½	3	3½	4	2½	3½	
Diameter of Exhaust ...Inches	1	1½	1½	1½	2½	3	1¾	2½	3½	4	2½	3½	4	5	3	4	

PARTICULARS, &c.—*Continued.*

Diameter of Steam Cylinder ...Inches	30	18	24	30	32	18	24	30	36	21	30	36	42	26	36	44	
Diameter of Water Cylinder ...Inches	7	8	8	8	8	9	9	9	9	10	10	10	10	12	12	12	
Diameter of Stroke ...Inches	72	36	48	72	72	36	48	48	72	48	72	72	72	48	72	72	
Strokes per minute ...	10	20	15	10	10	20	15	15	10	15	10	10	10	15	10	10	
Gallons per hour ...	11,000	15,660	15,660	15,660	15,660	19,800	19,800	19,800	19,800	24,400	24,400	24,400	24,400	35,240	35,240	35,240	35,2
Height in feet to which water can be raised with 40 lbs. pressure per square inch of steam at pump ...	1,100	300	540	840	960	240	427	665	960	264	540	780	1,062	282	540	800	1,0
Diameter of Suction and Delivery ...Inches	5	6	6	6	6	7	7	7	7	8	8	8	8	10	10	10	
Diameter of Steam Inlet ...Inches	5	3	4	5	5½	3	4	5	6	5½	5	6	7	4	6	8	
Diameter of Exhaust ... Inches	6	3½	5	6	6½	3½	5	6	7	4	6	7	8	5	7	9	

PRICES OF THE ABOVE ON APPLICATION.

Any combination can be made between the Steam and Water Cylinders, to suit Height of Lift and Pressure of Steam.

TANGYE BROTHERS & HOLMAN, 10, Laurence Pountney Lane, London, E.C

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